VOL. IV TORONTO, APRIL 1920 NO. 4

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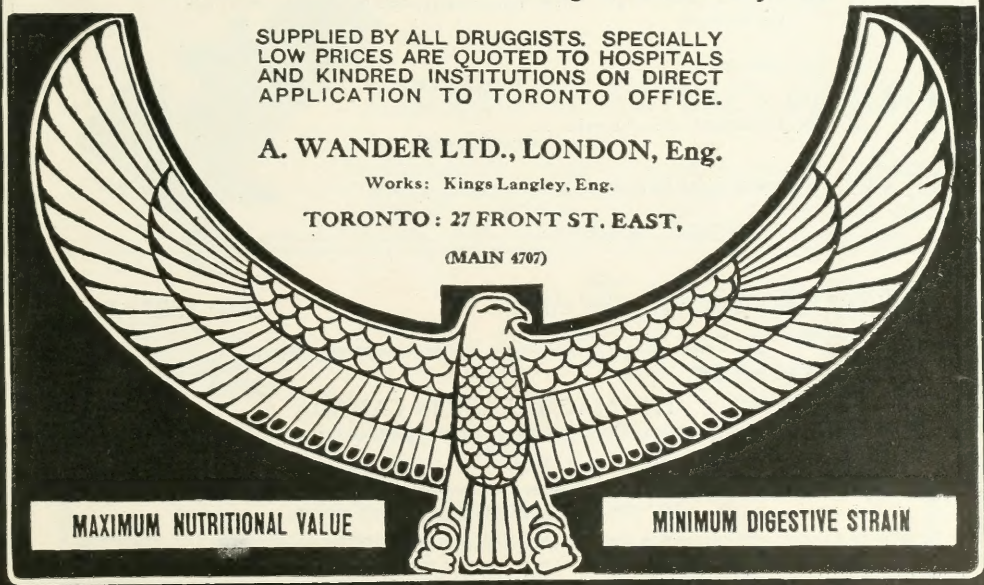

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VOLUME IV APRIL, 1920 NUMBER 4

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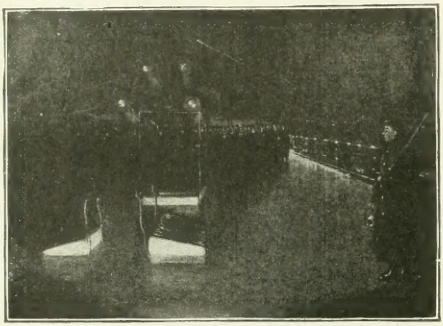

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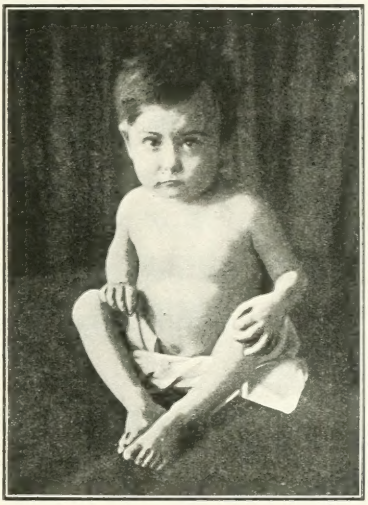

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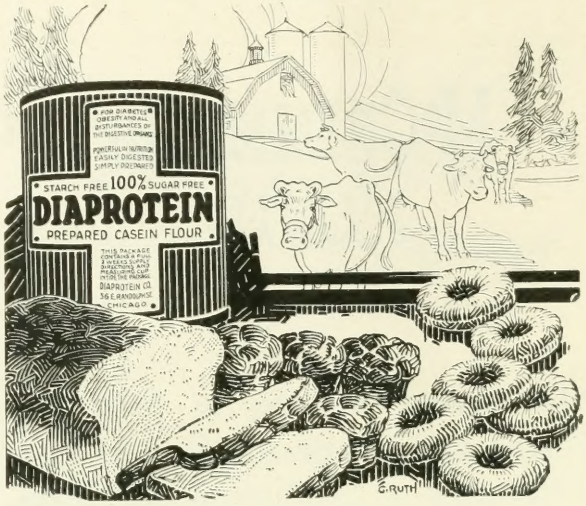

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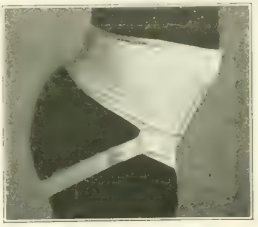

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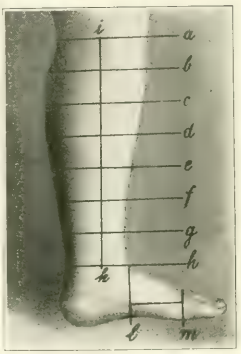

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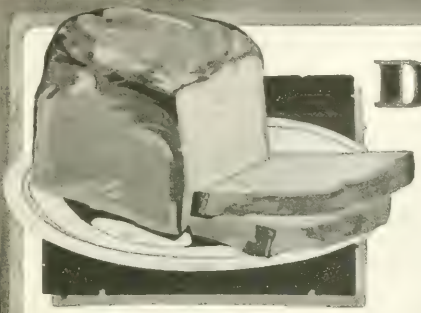

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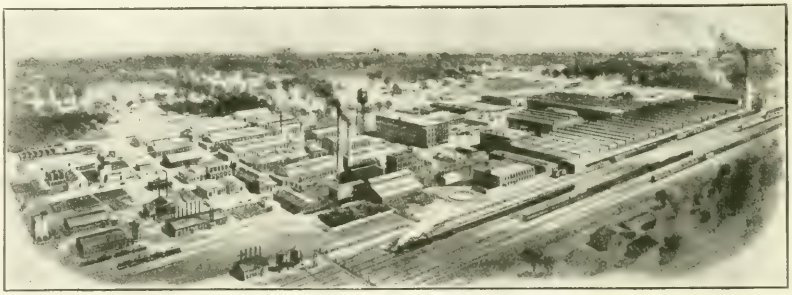

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The Canadian Medical Monthly

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EDITORIAL

THE ROCKEFELLER FOUNDATION

Much interest centres around the visit of Mr. George Vincent and Dr. Pearse to Canada at this time in connection with the activities of the Rockefeller Foundation in its relation to the advancement of Canadian medicine.

Possibly nothing in the past decade has helped so materially to arouse interest in the annals of medical pursuits in Canada as the announcement a short time ago that $5,000,000 is to be devoted by the Rockefeller Foundation to the advancement of medicine in this country.

There is not the smallest doubt that the part played by the medical profession in Canada in the world war in no small manner contributed to our being recognized as worthy of participation in the Rockefeller Fund, and the Canadian Army Medical Corps again has reason to be proud of a record which has added one further notable tribute to its glorious career.

No announcement is as yet forthcoming as to how the munificent grant is to be expended. Mr. Vincent and Dr. Pearse in visiting the various medical centres in Canada, will undoubtedly be guided by the counsel and advice afforded them locally; while, on the other hand, the experience and knowledge of these eminent directors will be largely a factor in determining the ultimate utilization of the funds to be spent in this country.

It is earnestly hoped that provision may be made for the carrying out of a definite plan which will be of particular interest to general practitioners and citizens, namely, the making possible of post-graduate courses being taken to the doctor rather than his having to give up his work among his patients for the purpose of attending distant post-graduate centres.

There could be no saner expenditure of medical funds, or more wisely spent part of the Rockefeller grant than that which would keep the outlying profes-

sion properly informed of all advances in scientific medicine and thought by means of systematic post-graduate lecture courses being carried on at various centres throughout the country, conveniently available to the men who find it a hardship, and in many instances an impossibility, to get away for the purpose of brushing up.

The academic centres should be staffed by well paid full-time teachers, whose partial duty it would be to spread their labours over definite districts whereby the general practitioner could sit at the feet of appointed learning and still carry on his avocation. The advantages of such a plan to the profession and the public is manifold. Instead of retrogression in our own ranks we would find stimulus for keener interest and working knowledge, while the public whom we serve would correspondingly benefit.

MEDICAL FEES

During the past five years the cost of living has increased nearly 100 per cent., and with prices of all commodities ever soaring, the end is not yet. An analysis of the situation suggests a "vicious circle"—truly no misnomer, when the facts are properly weighed and correlated. The employee, in order to live, requires increasing emoluments for his services. The employer, forced to pay more, correspondingly increases the price of his product. And thus, continually upward climbs the cost column, the net result being that two dollars to-day only does the work of one dollar five years ago.

Therefore, if X equals the income required to live on in 1914, 2X equals the income required for the necessities of to-day.

If X income is as adequate to-day as in 1914, the recipient was either a profiteer before the war, or is living in a fool's paradise to-day.

What has all this to do with medical fees? Plainly this, that the profession requires just double the amount to-day that they received for a like service five years ago.

Many a rural practitioner a few years ago received twenty-five bushels of oats or a ton of hay in payment for his services to his farmer patient. When gasoline displaced the doctor's nag, cash, in equivalent, took the place of oats, but at the then price of oats. The farmer to-day gets double the price for his oats, but still considers he should pay the doctor's fee computed on the old prices of rural produce. Yet the man on the land is far better able to pay to-day, on to-day's basis, than ever before in the history of Canada.

Similar comparisons might be made as to the point of view of the dwellers in cities and towns.

What action has been taken by the profession generally? Only sporadic, isolated and individual, to say the most. Here is a vital problem demanding organized action by local groups, county societies and provincial associations.

The public has learned the necessity for increased costs in every angle of existence, and the profession owes a duty to itself to see to it that their services are considered worthy of increased remuneration in comparison with any other necessity in life.

WERE WE PROFITEERS FIVE YEARS AGO, OR ARE WE FOOLS TO-DAY?

GOVERNMENT OWNERSHIP

Whether or not we believe in Government ownership of railways it makes no difference. Canada owns a transcontinental system of railways from sea to sea, with branch lines and feeders, to the extent of 22,000 miles in all, reaching any place you wish to visit.

If you own a Motor Car do you always Hire a Taxi?

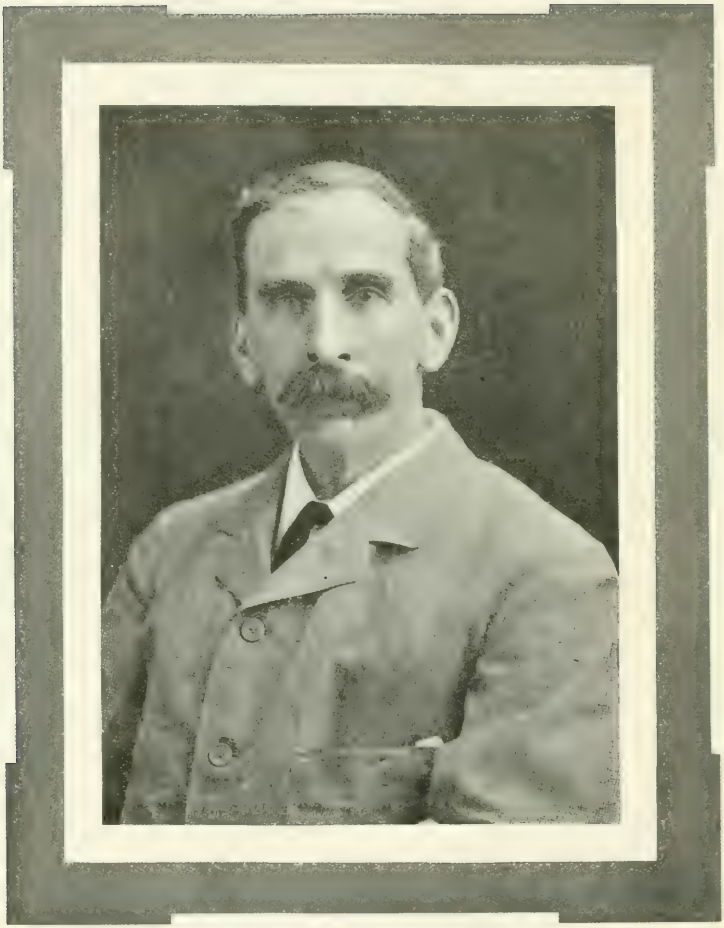
Our investment in these roads to date amounts to many millions, and our interest to be provided annually will be a very large sum. So, as we said, whether we like it or not, we have put our good money into the project, and the system is ours just as much so as a doctor's motor car is his.

There cannot be any criticism against our government-owned roads so long as they are managed in the same efficient manner as at present, and so we do not offer government service with an apology. On the contrary, the object of this editorial is to urge travel over our own rails for the pleasure of it.

The Maritime Provinces, connected by the old Inter-Colonial with Montreal and the West, have had their admirers in paint and prose and verse, and many a doctor has at one time or another travelled through that interesting part of older Canada. The government roads to the West, however, are much newer and less well-known, habit inducing many to continue using the "first comer" in the West. Now is the time when a Canadian should begin to use his own car and cease hiring a taxi every time he travels.

The Medical Convention to be held in Vancouver in June offers us an admirable opportunity to get some of our money back by giving the government road our fares and helping to pay off some principal and interest. There is no reason why anyone should be philanthropic in the matter, or consider the affair of a trip in any patronizing way. Just as good service can be had for the money as on a non-government-owned road, in fact by June, passengers will get quicker service to Vancouver than by any other road, and will go through a part of the magnificent West most of them have never seen before. Comfortable sleeping and observation cars, well equipped dining cars with excellent service, and a good roadbed, all conduce to a most pleasant holiday on the rail.

But the thing principally to remember is that since it is ours let's use it and spend our travelling money on our own possession.



Sir Victor Horsley, C.B., F.R.S., F.R.C,S.

SIR VICTOR HORSLEY
C.B., F.R.S., F.R.C.S.

PERRY G. GOLDSMITH, C.B.E.

Colonel, Canadian Army Medical Corps.
Toronto, Ont.

Among the many great Englishmen whose lives have been given to the healing of the sick and the betterment of mankind by their quiet yet thorough and painstaking investigations, few have attained the scientific eminence reached by Sir Victor Horsley. That he should take a leading part in the Surgical Councils of the Royal Army Medical Corps is as it should be, and that he should die in Mesopotamia at the height of his career, serving the sick and wounded, is as he might have wished.

Victor Horsley was born on April 14th, 1857, the same day that Princess Beatrice was born, and the Queen, who had a kindly regard for the family, noting the coincidence, sent word that she wished him to be named after herself. His father, a Royal Academician, was known for his book entitled the "Recollections of a Royal Academician," and his painting, "Rent Day at Haddon Hall." To him also fell the unusual honour of having one of his canvases hung in the National Gallery while he was still living. Victor's early life was therefore spent in an artistic atmosphere, and this may have had no small bearing on his skill in careful and accurate observation and his free and accurate drawings. In December, 1873, he left Cranbrook School, in Kent, and matriculated at the University of London in the following year. During his subsequent studies for his preliminary scientific examination he came under the eye of Sir Oliver Lodge, and on passing his examination in 1875, he was awarded the college gold-medal for Anatomy.

His next three years were given to the study of anatomy and physiology under such masters as Ellis, Thane, Burden Sanderson and Shafer. He passed his qualifying examination for the Royal College of Surgeons in 1880, at the age of twenty-three. Among his fellow-students he was noted for his hard work and original ideas. In the Students' Medical Society of 1876-1877 he read a paper on the "Termination of Muscular Fibres," and a note on the "Structure of Intervertebral Discs." He was elected head of the Students' Medical Society and awarded a prize of five pounds for his work. At examinations,—and he protested strongly against their value,—he was frequently among the medalists.

In 1880 he was associated with Mr. F. W. Mott in the study of bacteriology, and their work appeared in the Journal of Physiology in a paper entitled, "On the Existence of Bacteria and Their Antecedents in Healthy Tissues." These two

students, who afterwards gained such high distinction, were already in 1880 doing bacteriological work far in advance of their contemporaries. Before he was qualified to practice he was teaching, experimenting and publishing observations in physiology and bacteriology. Where will one find a medical student now who, as Horsley did, spent part of his holidays working out some details in the microscopic structure of the salivary glands of the green woodpecker?

He was a strong-willed, hard-thinking young man, and defended his opinions earnestly and so good-naturedly that where lesser men would have lost influence he gained it. He denounced wine and tobacco, even in his student days, for he found his ability to study materially lessened by even very moderate use of them. For his devotion to bacteriology, which then was a new science full of large and amazing surprises, students called him the Germ; other names less often used were the Professor and the Vulture, the latter for his insistence on *post mortems*, while in more recent times he was called Archibald Allright, for his invincible optimism.

His first hospital appointment after passing his final membership examination in 1880, was as house surgeon to Mr. John Marshall, Professor of Clinical Surgery at University College. During this period he was keenly interested in the study of the brain, and in order to arrive at some definite conclusions, undertook a long series of experiments on his own brain. He anæsthetized himself, or got a friend to do so, some fifty times in all, devising ways of recording and signalling his experiences. In 1881 he took the degree of Bachelor of Medicine and Bachelor of Surgery of the University of London. The gold medal in Surgery was awarded him and also a university scholarship. Three years later he became a Fellow of the Royal College of Surgeons.

The next six years were years of very hard work and had much to do with his future success. He was only twenty-seven years of age, yet working with Shafer he was contributing scientific articles dealing with pathological conditions of the nervous system. In this period he became Professor Superintendent of the Brown Institution. He was singularly well fitted for the post. It gave him a laboratory of his own and the direction of the investigations of a number of capable young men who were glad to recognize his attainments. It also brought him more in touch with governing bodies, such as the Local Government Board, Army Veterinary Department, Royal Agricultural Society and the Royal Society, for each of which he carried out special investigations. It was at this institution that Horsley did most of his work on the thyroid gland and rabies, as well as a great deal of his investigations on the localization of the function in the brain. While Sir Felix Semon was the first to assert definitely that cretinism, myxodema and cachexia strumipriva were closely allied with and due to absence or degeneration of the thyroid gland, it was largely due to Horsley's experimental work on monkeys that definite though tardy proof was brought forward.

Prior to 1886, Sir Victor, though well known in the field of experimental physiology, and especially cerebral localization, was not at all in the public eye. His work, however, in the prevention of rabies, which was so common in England, made his name widely known. He was appointed secretary of the commission appointed by the Local Government Board to enquire into Pasteur's method of treating rabies. Ultimately he became Pasteur's chief representative in England, and he more than anybody else explained Pasteur's method to the British public. He was at this time the only man in England, young though he was, who was able to definitely say if a dog or other animal had or had not rabies. His strong advocacy of the muzzling and quarantining of dogs raised the ire of all the dog lovers in the country. Horsley had great contempt for these people, and he spared nothing in his condemnation of them.

It is in his studies of the localization of function in the brain that Sir Victor Horsley's name will mostly enrich medical literature. True, his work on myxœdema and rabies was epoch-making in England and a glorious tribute to preventive medicine. The brain offered him problems, opportunities and reward as no other study could, nor was there any other investigation requiring so much of his special ability along pathological and physiological lines.

He worked with Beevor and Schaffer for two years on brain surgery on monkeys. Naturally his place was at the Queen's Square Hospital, then and now the centre of the studies of diseases of the brain and nervous system. The staff wanted Horsley, for up to this time, 1886, few cases of modern brain surgery could be found in English literature. His first operation at Queen's Square was on a young man with fits following an injury to the head in childhood. The patient had 2,870 fits during his first thirteen days in the hospital. Horsley removed a scar in the brain and surrounding brain substance to a depth of two centimeters. The fits were cured at once.

Aural surgery owes much to Horsley, for it was to him, or at any rate largely to his work, that we owe the modern procedure of ligation of the internal jugular vein in some cases of lateral sinus thrombosis. In the transactions of the Otological and Ophthalmological Societies, Horsley's name frequently appears. His observations on the intra-cranial complications of suppuration in the middle ear, and his interpretation of the value of optic neuritis in intra-cranial pathology were the result of experience few men could have had. He also reported the results of the removal of the pituitary body.

Sir Victor Horsley was the first to successfully remove a tumor from the spinal cord. This he did on an officer in the army who suffered for three years with severe pain, partial paralysis of the bladder and complete paralysis of both legs. The patient recovered and remained well. The operation was considered a remarkable achievement, and paved the way for the great subsequent advancement in the surgery of the spinal cord. He also added greatly to our knowledge of the possibilities of surgical treatment of the gasserian ganglion.

In 1894, and only thirty-seven years of age, we find him in Cavendish Square engaged in consulting work, and though actively employed with his private practice and hospital appointments, he found time, by working long after others would have rested, to continue his scientific investigations, which he carried out in a laboratory in his own house. In this year he was awarded one of the gold medals of the Royal Society for his "investigations relating to the physiology of the nervous system and of the thyroid gland and to their application in the treatment of disease." Though he had been many times honoured by scientific societies, both in Britain and the Continent, there is no award more highly thought of than this one.

In 1902 he received the honour of knighthood and took a very leading part in the medical politics of Great Britain. When fifty years of age he resigned his appointment at University College Hospital and the professorship of Clinical Surgery of University College. One who had held both the chair of pathology and surgery at a university could hardly divest himself of all university connections at so comparative young an age. Though not actively engaged in hospital teaching he maintained a room in the college in which he carried out many experiments, and where he was much sought for by the many post-graduate students who came to London.

He completed twenty years of service at Queen's Square, and at his visit to Toronto in 1906, in a paper read at the British Medical Association, he summed up all he had learned in that time. Though his chief discoveries in physiology and surgery were in the wonderful years between 1884 and 1900, he continued to contribute to our scientific knowledge as late as the beginning of the war, even if he was possibly all too actively engaged in political and social questions.

His visit to Toronto will be remembered by many. The University of Toronto conferred upon him the degree of Doctor of Laws. His strong advocacy of total abstinence from alcoholic drink was so universally known that he was asked, with Sims Woodhead, to address the Ontario Branch of the Dominion Temperance Alliance.

One who had made such a great study of social conditions in England, preventive medicine and medical politics was sure to be sought out for parliamentary honours. The Liberal Association of the University of London nominated him in 1910, but he was defeated by Sir Philip Magnus. His strong advocacy for the votes for women which he held probably caused his retirement from the political contest in the Harboro Division of Leicestershire. Though he failed to enter Parliament, had he lived a little longer he probably would have done so, as just before his death he was the accepted nominee for Huddersfield.

"The sphere of professional politics had an absorbing interest for his active brain. The administrative affairs of his profession, its place in the social system, and its influence on the mind of the community were of unfailing interest to him. They exercised his desire to improve conditions and the rewards of general practice, the education and examination of students, the penalties for wrong-

doing, the protection of honourable men from slander and blackmail, the protection of the public from quackery, the teaching of temperance and hygiene, and the registration of nurses and midwives."

His work for the British Medical Association over many years has had much to do with the present high standing and authoritative position this organization has in all questions dealing with the medical side of British life.

His advocacy of total abstinence was so fierce and so harsh, and often unjust was his criticism of those who differed from him that he made many enemies, even among life-long friends. Nevertheless, Horsley by his years of educative work along temperance lines has done a great deal to direct attention to the demoralization which has taken place among many of the working classes owing to their excessive indulgence in alcoholic drink. His high position in the Scientific and Medical Councils of the Empire gave to his advocacy of temperance great prominence and recognition. Any cause was the stronger for Horsley's support. When appointed to any committee dealing with important questions, he put all his strength into the work, and was impatient and sometimes ungenerous to those who did not show the amount of enthusiasm he considered the cause demanded. This is probably the reason he was considered by some as hard to get along with at committee meetings.

The rum issue to the troops afforded him an object for attack, which he carried out with his accustomed vigor and unrelenting zeal.

The war found him eager to take his part, as his two sons had already done. Though honored by many of the scientific societies in Germany, and intimately associated with most of her leading physiologists and surgeons, Horsley did not hesitate a moment to publicly express his loathing and disgust of the brutal and disgusting actions of the German army. When a house surgeon he drilled with the Artists' Rifles, and though connected with various military organizations all his life, he, like many other able and energetic surgeons, was tardily placed, and badly so at first. His early experiments of the effect of bullet wounds on the brain and other organs was utilized by the War Office when he was asked to report on the rifle and revolver ammunition issued to the troops. This was done to refute the German assertion that the British were supplied with dum-dum bullets. For his work he received the thanks of Lord Kitchener.

Early in 1915 he was appointed in charge of the Surgical Division of the 21st General Hospital for service in France. While this hospital was being organized, he was actively engaged at Sir Henry and Lady Norman's hospital at Wimereux. In May of 1915 the 21st General Hospital was ordered to Egypt, and Horsley accompanied his unit. He was soon appointed Consultant in Surgery to the Mediterranean Expeditionary Force, with the full rank of Colonel. He was unsparing in his criticism of all things lacking for the comfort and well-being of the sick and wounded. In Egypt he made many enemies, by expressing, with all that contempt for anything that was not thorough, his views of much that was faulty in the arrangements for the first rush of wounded from Gallipoli and the

administration at Cairo.. An amusing experience occurred here. An Egyptian medical officer had a number of severe head cases under his care, regarding the management of which he desired advice. He telegraphed the administration to send a brain specialist, and Sir Victor Horsley was sent at once. He saw the cases and advised as to treatment. The Egyptian not knowing the name or fame of his consultant, was not satisfied that one of sufficient prominence was sent, because he was an old man and only a major. He did not know he was being assisted by probably the greatest brain surgeon in the world.

He visited Gallipoli and was in great demand by the surgeons to assist in the treatment of head wounds. He inspected nearly every hospital and field ambulance, talked and lectured to the medical officers right up to the trenches. Everywhere he was hailed with delight, for he did everything he could to encourage the medical officers and help them in their difficulties, for he recognized the great difference experienced by men who were accustomed to be regarded as somebody in their own small way, suddenly finding themselves atoms of one big machine.

He was subsequently transferred to India and Mesopotamia, where he died of heat stroke on July 16, 1916, at the age of 59. While he was Consulting Surgeon with the forces in the Far East there was little surgery to employ his time, but he worked long and late to get all the medical arrangements on a better footing.

Bravery may show itself in many forms. Sudden impulse, with contempt for immediate and inevitable death, is not any more real than the bravery shown by Sir Victor Horsley in volunteering for service in Mesopotamia. Against the advice of those knowing better than he the dangers of a campaign in the heat of Eastern countries, and the privations and hardships to be encountered, he went to the East knowing that he might die there. He said to Lady Horsley just before he left Egypt: "Don't worry about me; I don't matter; I can't live forever; it's the young that matter."

To record some of the events in the career of Sir Victor Horsley is not difficult, as I have simply viewed them through the eyes of Stephen Paget's book on "Sir Victor Horsley." To do justice to his marvellous achievements in the realm of scientific medicine, and to value them from the standpoint of the benefit he has given suffering humanity, is a far more difficult task.

The problems of the surgery of the brain and nervous system have not yet all been solved. Great as has been the progress in recent years, the future would seem dark indeed had Sir Victor Horsley not lived.

In the sun-baked plains of Amarah the earth has embraced for all time the remains of this great man. The winds that shift the sands to and fro over his grave must carry to all lands an inspiration and exhortation to even those yet unborn that among life's greatest treasures is not the amassing of wealth or position, but the knowledge that one has contributed something to the sum total of things that make for the alleviation of human suffering and the amelioration of the conditions of life among the masses.

ILEO-CAECAL REGURGITATION SYMPTOM COMPLEX

William Goldie, M.B., Toronto.

The functioning of the several portions of the gastro-intestinal tract is as yet not fully understood, hence we have no clear conception of the correlation and the interaction of the different portions of the system, nor do we fully appreciate how defects in associated organs, or apparently unassociated organs, interfere with the functioning of the various portions of the tract.

Therefore, in the study of gastro intestinal cases the conclusion is soon reached that there are a remarkably small number of cases which can be readily classified under the headings of the well known disorders.

So often do the same symptom complexes arise from different causes, or combination of causes, and so often do variable symptoms arise from the same cause or combination of causes, that it is necessary to undertake a prolonged and repeated analysis of the history, and to repeat all the known tests and examinations before a separation into rough groups can be accomplished, or the few cases be classified as due to definite causes.

In roughly grouping cases it is necessary that there be some common factor, or factors, such as a symptom group, a definite time relation to the function cycle, a constant function fault as revealed by test or X-Ray examination,—or a constant clinical finding.

The object of this communication is to record one of these groups which have certain common symptom complexes, a common function fault, with a distinctive time occurrence of the principal symptoms.

The symptom groups consisted of three divisions, each varying in intensity or severity, but always recognizable:—

(1) Distress in the lower abdomen, most marked in the lower right quadrant, varying from unease, heaviness, dragging ache, sense of burning, deep soreness, to actual pain of varying severity.

(2) Indifference to food, loss of appetite, distaste, nausea,—to vomiting.

(3) Heaviness, lassitude, tiredness, pallor to patchy pigmentation, etc.—the so-called auto intoxication.

The time of occurrence is even more distinctive than the symptoms, for it is on awakening and before breakfast that the distress and the gastric symptoms are most evident. During the forenoon the symptoms lessen or disappear, but recur after sleep next morning or in the afternoon if the patient indulges in a nap. In the early cases there seem to be attacks of variable length, with intervals of apparently normal health, but in the more advanced cases there is continuous discomfort and ill-health, with periods of marked exacerbation.

In all but the most severe cases there occur intervals in which the patient rapidly improves; all distress and gastric symptoms disappear, and general health is so much better that the patient is hopeful of permanent relief. These intervals correspond definitely to periods when the patient is free from nervous tension, and having much out-door exercise, or when the patient is taking frequently in the day small doses of laxatives. Very soon after the patient returns to the usual routine of life the symptoms recur with the same continuity and the same exacerbations.

The symptoms in these cases closely resemble those associated with organic ileal stasis, but the time of occurrence is different. In the case of organic ileal stasis the patient complains of no distress until after the mid-day meal. If the second meal is delayed until the evening, or until the terminal ileum is free of the content from the previous meal, there is no complaint of distress.

But in the present series the time of occurrence is in the early morning when the ileum should be empty, and in none of these cases was there gastric delay which would account for an ileal content in the morning. This being so, then the symptoms that we associate with organic ileal stasis are due to some other factor, or there is in this series a stasis or a regurgitation occurring during sleep: But the state of sleep cannot of itself produce such an ileal stasis with symptoms, or all organic ileal stasis cases would have an exacerbation of symptoms on awakening.

In the literature concerning incompetency of the ileo cæcal valve, I could not find that note had been made of this time factor.

While engaged in analysing these histories, I was fortunate to have come under my observation a series of thirteen cases which gave the above common factors, and it was possible to carry the investigation further by the use of barium enemata, and it was found that all but one case showed extreme grades of incompetency of the ileo cæcal valve, with regurgitation far back up the small intestine.

In two cases the regurgitation went as far up as the junction of the jejunum and the duodenum.

From the X-Ray examinations no other common function fault could be demonstrated.

The X-Ray investigation is not complete, as it has not been determined how long the small intestine retains the barium enema, nor has it been determined in all cases that the cæcal contents from a mixed barium meal taken in the evening are to be found in the ileum in the morning.

In three cases this investigation has been carried out: a heavy mixed meal with buttermilk, and barium was given at 10 p.m. The following morning fluoroscopic examination was started at 7.30 a.m. and repeated every hour during the day. In one case, at 7.30 a.m. there was 30 per cent. of the barium in the ileum: at 8.30, half an hour after breakfast, there was 10 per cent.; at 9.30, there was between 15 per cent. and 20 per cent.; at 10.30, there was 10 per cent.; at 11.30.

15 per cent.; at 12.30, half an hour after lunch, the barium had left the ileum and did not return. In the other two cases the percentages and time were so nearly the same that the detail need not be re-stated.

The one of the thirteen cases which failed to show incompetency is well worth noting, as the symptoms were those of an early case, with two distinct periods of exacerbation, occurring in a young married woman of twenty-three. She was menstruating at the time of examination, and had not missed a period. But instead of incompetency of the ileo-cæcal valve being found it was discovered that she was full three months pregnant.

While it is possible by means of the symptom groups and the distinctive time of occurrence to separate a group of cases which have a definite function fault of incompetency of the ileo-cæcal sphincter with regurgitation, it must not be inferred that incompetency of this sphincter with regurgitation gives rise to all the symptoms, for it has been demonstrated that this function fault occurs in more or less degree in about one out of six gastro-intestinal cases. Mere stasis or regurgitation cannot be the sole cause of the disturbances that occur in this group of cases.

Regurgitation from the stomach into the œsophagus in its slightest form can almost be regarded as normal, yet in some cases where it is moderate there is much distress and discomfort. In this instance the origin of the symptoms depends less upon the regurgitation than upon the time of its occurrence and the stage that digestion has reached in the stomach.

It may well be that a similar influence is acting in this group, or that the factors which produce the characteristic group picture also produce the incompetency and determine the time of regurgitation.

The ileo-cæcal valve is essentially a sphincter at the terminal ileum, under the stimulatory control of the sympathetic and the inhibitory control of the vagus.

Its action as a sphincter has been well demonstrated in a case recorded by Short, where the sphincter contracted firmly when the stomach and ileum were empty, and relaxed when these portions of the tract were active; but the other factors that influence its action can only be surmised.

The sphincter is aided in many cases by the mechanical valve action of a projection of the mucous membrane of the ileum and the cæcum into the lumen of the cæcum, forming a two-flap valve, supported by a projecting ledge of mucous membrane extending horizontally far around the interior of the cæcum.

This mechanical feature is not always present, and the sphincter then must bear the brunt of the extra cæcal pressures.

The sphincter might be relaxed by disease, interference with its innervation, or by influences, physical or chemical, existing in the cæcum and the ascending colon.

Operative interference must be directed to replacing the defective sphincter by a mechanical valve, and it would appear from the literature that the results of the technique in use at present are not satisfactory.

If the operative measures could provide a permanent mechanical valve, yet there would remain the defects which brought about incompetency of the sphincter, and those factors other than the regurgitation which produced the symptoms.

Only two of my cases have undergone operation for the formation of a mechanical valve.

In one the incompetency and regurgitation was overcome, with complete relief of all the symptoms, with a gain in weight from eighty-six pounds to one hundred and twenty-eight pounds, but laxatives are necessary.

In the other the incompetency and regurgitation recurred within six weeks, and though the patient claims some improvement he does not feel well, nor has he gained weight.

None of the other ten cases in which incompetence and regurgitation of marked degree was demonstrated, nor any of the presumptive cases belonging to the same group reports a permanent cure by adhering to medical treatment, but all have obtained more or less relief.

The medical treatment has consisted of small doses of saline, taken three or four times a day, an enema each night, means to relieve the nervous tension, and regular physical exercise.

REPORT OF A CASE OF STEEL IN THE LARNYX

By F. Allport and B. Wilson.

Jour. A.M.A., Vol. 72, No. 18, May 3rd, 1919. Patient Male, Age 40.

Seventeen days before being seen by the authors the patient was struck by a small fragment of steel. The wound, which was just below the point of the chin, was sutured, and the man resumed his work. Since the accident he said he could not talk above a whisper, and when examined by the authors, a hoarse, rough whisper persisted. A slight prominence, somewhat conical in shape, was found at the left lower aspect of the thyroid cartilage. It was adherent to the overlying skin, solid to the touch and moved with the larynx.

Laryngoscopic examination revealed immobility of the left vocal chord, with moderate laryngeal inflammation. X-Ray examination disclosed a foreign body one and a quarter inches in length extending anteroposteriorly and apparently through the left thyroid cartilage.

The piece of steel was removed under local anæsthesia. At the end of a week the normal voice had returned.

The authors' explanation of the paralysis of the vocal chord is that in some way the foreign body was able to immobilize the vocal chord without having actually penetrated the larynx. Perry Goldsmith.

INDICATIONS FOR AND AGAINST TONSILLECTOMY*

D. J. Gibb Wishart, M.D.C.M., L.R.C.P., Lond., F.A.C.S., Toronto.

The title selected for this discussion does not, I believe, accord with the intentions of the Programme Committee, for if so, my paper should be devoted to the controversy between tonsillectomy and tonsillotomy. This controversy began in 500 A.D., when Aetius advocated the partial removal of the tonsil (tonsillotomy) as opposed to the teaching of Celsus, who in 10 A.D. advocated total removal (tonsillectomy). The controversy is by no means settled—nor will it ever be—since no one operation or treatment should be adopted as a specific for a tonsil. Rather each case should be decided upon its own merits, and the laryngologist be called upon to form his judgment after full investigation, and to stand or fall by the result of his decision, otherwise the specialist degrades his office, and becomes a mere operator—a tonsillectomist or tonsillotomist.

I have a profound conviction that this is what our specialty is descending to to-day, when our country is flooded with specialists whose sole training has been a sixteen months' hospital internship or less, and when "the massacre of the tonsil" has become a byword. The faucial tonsil deserves to be taken seriously, and the operation for its removal to be considered as a major, and not a minor operation, when the possibilities of lifelong damage from faulty technique are taken into account.

In the belief that what I am called upon to do to-night is to endeavour to enunciate some of the principles which should guide the investigation above referred to, I will proceed.

Waldeyer's Ring—a term which includes the faucial, pharyngeal, and lingual tonsils, as well as the multitude of single follicles scattered over the whole extent of the pharyngeal mucous membrane, is but one group of the lymphoid tissue cells, which find their appointed place in the respiratory and digestive tracts, Peyer's patches and vermiform appendix, as well as in the spleen and body glands.

To understand what part the faucial tonsils by themselves play in this mechanism, we must understand their physiology. About this question there has been much thought and investigation, but no fixed theory has yet been adopted. The faucial tonsils appear in the later months of foetal life, but as to their function during their intra uterine existence I have been unable to find a single reference. They develop further after birth, but before long begin to

*Presented before the Academy of Medicine, Toronto, December, 1919.

disappear, and by puberty may be non-existent, thus suggesting that they are rudimentary organs, and it is certainly probable that they play but a relatively unimportant lymphatic role.

Of what value are the faucial tonsils? Among other theories advanced the following are the most in favour:

Homopoietic Theory—To produce lymphocytes for the blood, in common with the other lymphoid nodules of the body. Many of these lymphocytes produced by the faucial tonsils pass directly into the pharynx, but what proportion into the regular lymph stream has not been ascertained. This theory may be said to have some undoubted histologic basis.

Internal Secretion Theory—Masini attributed to the faucial tonsils a function similar to that of the supra-renal glands, because there was a rise of blood pressure following the injection of tonsil extract into dogs. From the clinical point of view, when we think of the good results following faucial tonsil removal in many of our patients, we are forced to consider this theory untenable.

Protection Theory—Based upon the well understood action of all lymphatic glands in delaying the spread of bacterial infections. In this connection I cannot do better than quote Sir St. Clair Thompson, who says: "It would appear reasonable to regard the various tonsils of Waldeyer's Ring as organs for defence of the respiratory and digestive tracts during the early years of childhood. The ages in which they are most in evidence, their situation, their structure, the recognizd emigration of lymphocytes through their epithelium, their frequent enlargement with an infectious process, the frequency with which, when their resistance is overcome, they appear to be the starting points of infection, their lasting hypertrophy after prolonged or repeated infections, experimental observations which show that they serve as ports of entry for infection, and their normal involution at puberty, appear to confirm this view." They form, as others put it, "a first line of defence."

In support of this theory I might further cite Goerke, who believes that there is not only a stream of cellular elements from the tonsillar parenchyma through the crypts, but a constant flow of fluid through the interstices of the epithelium, which prevents the entrance of organisms.

This theory has many foes as well as friends, but it is needful to remember that even if it be correct, we must have a healthy tonsil as a first line of defence, and in addition that the body forces which control the supply of the streams of lymph and fluid must be in full working order. The tonsils plus these forces must be equal to the task of defeating the onset of the bacteria from the throat. On this point it is interesting to note the words of Jonathan Wright as quoted by Phillips: "My experience seems to furnish conclusive evidence that under normal conditions bacteria do not penetrate the epithelial layer of the (faucial) tonsil in sufficient numbers, at least, to set up disease. Yet we know from clinical experience that nerve shock from fractures, hæmorrhage, nasal operations, uric acid, sudden cold, etc., produce systemic change by which

infection is more easy and more dangerous. I believe that the mechanism causing surface infection is a chemico-physical change set up by impulses carried along the sympathetic nerves. This produces an alteration in the surface tension existing normally between the bacterial denizen of the tonsillar crypt and the epithelium which lines it. By virtue of this change the living pathogenic agent enters the system."

Immunity Theory—By which the crypts are regarded as culture tubes in which organisms are cultivated, and toxines generated, to be absorbed in doses just large enough to produce sufficient anti-bodies to immunize the owner.

If this be true, the removal of the faucial tonsils in the child before he has acquired the needful supply of anti-bodies, would predispose to infection. Extensive study upon the effects of tonsillectomies in children, having regard to their susceptibility or otherwise to acute infections, such as diphtheria, scarlatina, measles, etc., would be of great value in dealing with this problem, and I am sure the staff of the Hospital for Sick Children will recognize their responsibilities in conducting such a research.

Further, if this theory were correct, the total removal of the child's tonsil would be a crime, and the sole need for a tonsillotomy would be that the size of the faucial tonsil interfered with proper breathing or speech, or was undoubtedly diseased.

The diversity of view as to the true function of the faucial tonsil has led to some most extreme utterances and practices.

The late Dr. Ballenger, of Chicago, told me personally that he would entirely remove the tonsils in children, making no exception as to the age of the child. He believed that the deepest parts of the crypts were the most dangerous, and, therefore, that if removal were needful at all, it must be complete. However, Dr. Ballenger afterwards modified his views, and stated in his 1908 edition that "it may be still questioned whether it is good practice to remove the tonsils in the wholesale manner which is now in vogue. The function of the (faucial) tonsils in a child, and in an adult, is still an open question. The last word concerning the treatment of the tonsil cannot be spoken until its exact function is established."

Meanwhile we find Perry advising the removal of the faucial tonsils in all children of four years of age, as a prophylactic measure, forsooth. Such teaching is as mischievous as it is false.

This brings me to the question of the evening, which is: When is the presence of a faucial tonsil a menace to its owner?

1st. Or rather by way of a further premise, I wish to protest against the term enlarged tonsil, a term upon the lips of every school nurse, and of many of the medical profession, and as a direct result, of the public.

Coolidge and Garland weighed the faucial tonsils from a long series of tonsillectomies in children, with the result that they showed an astonishing uniformity in weight, between 40 and 50 grains. Those pronounced enlarged before

operation were found actually to weigh less than those which were buried out of sight. The prominent tonsil was actually smaller than its mate, which had not attracted attention.

Prominence, and hypertrophy or enlargement, are not synonymous terms, nor any indication for operation. The relative depth of the sinus in which the tonsil lies is solely responsible for its prominence or otherwise.

2nd. Tonsils, by their projection into the pharynx, may interfere with the breath current, may prevent proper phonation by clogging the movements of the palate, may drag upon the levator and tensor muscles of the palate, and so affect the pharyngeal end of the eustachian tube, and induce deafness. These would be legitimate reasons for their reduction in size, irrespective of the question as to whether or not they were in themselves diseased.

3rd. Whatever view of the function of the faucial tonsil appeals to the laryngologist as the most reasonable, there is no difference of opinion among the craft as to the fact that once a tonsil becomes diseased such function is largely or completely abolished, and decision as to the proper method of dealing with the situation is called for, but here again we find sharp differences of opinion when we ask what constitutes a diseased tonsil.

A history of an attack of quinsy may be considered as determining definitely the presence of disease. Such attacks will recur without question unless the tonsil be removed.

Recurrent attacks of tonsilitis also form a definite indication for removal, and I am of opinion that the presence of purulent secretion in the crypts is as definite.

The presence of enlarged cervical glands is likewise a good and proper reason for operation, because we know that direct infection has occurred from the tonsils through such glands. Tuberculous glands in the neck have been directly traced to the faucial tonsils. If we have a single case of tuberculosis in a family, the tonsils of the other inhabitants of the house should be examined, and if any doubt exists, their tonsils should at once be removed. Likewise the children of parents with a history of cervical adenitis should lose their tonsils.

There is an undoubted connection between rheumatism and the faucial tonsil, and every laryngologist has records of cases where tonsillectomies have been performed with most brilliant results, not only in rheumatic throats, but in acute rheumatism, and rheumatoid arthritis. I am convinced, however, that earlier removal of the tonsils in those who suffer from what may, for lack of a better term, be called "growing pains," would be wise. Early operation in all patients who suffer from any indication of rheumatism should be the rule, and I would not hesitate to do a tonsillectomy at the beginning of an attack of acute rheumatic fever.

Again the connection of Nephritis with the faucial tonsil has been practically proven, sufficiently so, at least, to make it good practice to carefully and repeatedly examine the urine in all attacks of tonsilitis, and to remove the faucial tonsils where the kidneys are attacked.

Where there is Ear Disease, either the deafness referred to before, or Suppuration of a chronic variety, the faucial tonsils should be searched as a possible cause of failure to respond to treatment.

Chronic gastritis, and loss of appetite for breakfast, has been found to arise from the constant swallowing of the masses of bacteria-laden debris shed from the faucial tonsil crypts. In such cases these tissues should be searched.

The frequency with which the faucial tonsils are found to be responsible for affections of the eye is well brought out in a recent article by Bell in the J.A.M.A. upon what he terms the three T's—standing for teeth, tonsils and intestinal toxaemia. Examination of the tonsils should never be neglected by the ophthalmic surgeon, and some at least of his obstinate cases will be cleared up when those faucial tonsils which are diseased are removed.

Another reference is of interest—the possibility of the tonsil crypts being the breeding ground for the hemolytic streptococci, which appeared to have much to do with the outbreak of broncho-pneumonia among the American camps last year.

There is still a large army of faucial tonsils which lie out in No Man's Land.

1st. Those where masses of debris are concealed in the crypts. These masses should be examined and a record made of the bacteria present. We do not know yet how to estimate the value of such an examination, or how to direct our treatment in accordance with the findings, but where our ophthalmologic confreres have succeeded, we have a right to hope that we too shall yet be able to direct our treatment according to the character of these bacteria.

2nd. Those where some of the crypts are unable to discharge their debris freely on account of their mouths being covered by the plica, or by the junction of the pillars in the supratonsillar area. Such crypts are far more likely to be the source of absorption than those which, by being freely open, are led to disgorge their contents by the perpetual squeezing to which the faucial tonsils are subjected by the motions of swallowing.

3rd. Those where the pillars are adherent should receive close observation, because the points of adhesion may prevent free palate movement, or may contract the mouths of the crypts and lead to retention and absorption.

4th. Those which fail to atrophy at puberty. Kyle states that this "failure to atrophy is due to some pathological condition of the tonsil or its surrounding structures."

Nothing has been said as to the Indications against Tonsillectomy, but much, I trust, may have been read between my previous lines. The operation has apparently "passed beyond the sphere of those seemingly most competent to judge of its necessity, and through technical experiences best qualified to perform the operation," and, therefore, I must add yet another word.

The diagram taken from St. Clair Thompson shows that the faucial tonsils are only two of the six or more portions of *Walder's Ring*, and the search for the focus of infection must not only embrace all of the ring (other parts of which

are proven more susceptible as infective tracts than the faucial tonsils), but the teeth, the gums, the nose and accessory sinuses, the ear and mastoid cells, the gall-bladder, appendix, and the seminal vesicles, before the faucial tonsils, unless definitely diseased, should be treated as the scapegoat, which in the Hebrew dispensation, after having received the sins of the nation upon its head, was personally conducted into the desert and there lost to sight for ever. As has been well said, the tonsil operation is frequently an indication of lack of mental effort. In common with my colleagues I frequently see cases where the scapegoat has failed to carry away the sins.

The status lymphaticus may be a legitimate reason for avoiding operation, but I am convinced that hæmophylia is not, when proper precautions are observed, unless the hæmophylia be of the pure variety.

Fortieth Annual Meeting Ontario Medical Association

Toronto, May 25th, 26th, 27th and 28th, 1920

According to the preliminary programme now announced by the Committee in charge, the fortieth annual meeting of the Ontario Medical Association, which is to be held in Toronto during the dates of May 25th, 26th, 27th, and 28th, 1920, bids fair to excel in point of interest and instruction previous gatherings of the Association.

During the past two months the members of the Programme Committee have been assiduously endeavoring to secure the co-operation both at home and from abroad, of outstanding members of the profession to take part in the scientific programme.

In referring to the list of speakers and their subjects, elsewhere to be found in our columns, it will be readily recognized that an exceptionally well balanced programme is assured.

Now that the medical profession is largely rehabilitated following the past five years of greatly depleted ranks at home, the Ontario Medical Association will undoubtedly have a most enthusiastic and representative gathering at its Fortieth Annual Meeting.

SECTION OF OBSTETRICS AND GYNAECOLOGY

Preliminary Announcement for Fortieth Annual Meeting

Dr. Thos. S. Cullen, Baltimore, Prof. of Gynæcology, Johns Hopkins.	Distribution of Adenomyomata containing Uterine Mucosa.
Dr. B. P. Watson, Toronto.	Induction of Labour.
Dr. E. K. Cullen, Detroit.	Title to be announced.
Dr. W. W. Lailey, Toronto.	Complement Fixation Test (in gonorrhœa in female).
Dr. G. G. Copeland, Toronto.	The Value of Rectal Examinations in Obstetrics.
Dr. C. J. Currie, Toronto.	Post Partum Temperatures.

THE STRANGE CASE OF DR. BISHOP

Hugh S. Eayrs.

Not all the martyrs are glorified in Foxe's Book of Martyrs! Any medical man who has seen the American newspaper reports of what we may refer to as "The Bishop Case" during the last two weeks of February and up to this writing, must have been interested, and not a little puzzled, as to the workings of American law.

"The Bishop Case" centres round the fact of a doctor who held a very clear and defined conviction on a matter of medical treatment of an ill; whether this ill is wholly physical or whether it is partly physical, partly mental and partly moral, has hitherto been a matter of opinion. He backed up his conviction by certain action in practice. As a result he is arraigned for violating the very law the existence of which on the statute book he is most anxious to approve, and most urgent to insist that it be applied with unmitigated rigor, to the end that a public evil be diminished and finally swept away.

I cull the following from the American "Medical Record." It states the case: "Ernest S. Bishop, of New York City, was arraigned before Federal Judge Hough on February 10, and held in $5,000 bail, charged with violating the Harrison Drug Law. The indictment charges the defendant with prescribing morphine, heroin and cocaine in excessive amounts, and contrary to the legitimate practice of medicine, to habitual users of narcotic drugs. When arraigned the defendant pleaded "not guilty," and was released on bail pending trial. Of course, no one who knows Dr. Bishop can for a moment believe that his offending was other than technical, and the trial, when it comes off, will without doubt make this clear to the dullest or most prejudiced mind. The charge is, however, a very serious one, and Dr. Bishop's friends will sympathize with him in his trouble, and wish for him a speedy trial and triumphant acquittal."

This straightforward and seemingly sufficient statement might delude anybody who does not know the facts. These are the facts. For a number of years Dr. Ernest R. Bishop has pioneered in the investigation of the increasingly serious evil of opiate drug addiction. He began where most physicians begin—unhappily, few of them seem to progress—secure in the belief that the addict was "a degenerate, a depraved wretch, unworthy of help, incurable and hopeless." "Like others," says Dr. Bishop, "I placed the blame on the addicts' supposed weakness of will and lack of determination to get rid of their malady."

This was the basis on which Dr. Bishop was working in his early days as resident physician to the Alcoholic and Prison Wards at the Bellevue Hospital. As he confesses, he failed miserably in his work. He changed his ground little by little—the story is too long to tell here—and adopted the view that drug

addiction *is a disease.* Years of practice have strengthened that opinion, and Dr. Bishop has resolutely pleaded that the problem of drug addiction must be treated symptomatically; his experience disproves the theory that addiction is a vice, a habit, a tendency, or that addicts are "dope fiends," "dope habitues," or "merely vicious." It *does* prove that the drug addict is actually diseased.

BLAZING A TRAIL.

It s very evident to those who have followed the course of events in New York State that such a theory as Dr. Bishop propounded had not only the misfortune of its novelty, but the further liability—from his standpoint—that it made enemies. He was bound to tread on a number of most important corns! Why from the first have leading lights amongst American medicos turned a cold shoulder to Dr. Bishop's advocacy of this newer theory of the solving of the drug addiction problem? Why has he been badgered in season and out of season by threats from high places to "get him" if he persisted in flouting the comfortable view that drug addiction was a necessary (?) moral evil and just that? And why, finally, is he hauled up as a criminal who has offended against the law of his country?

The answers to these questions touch a point of medical ethics. It is known that many physicians high up in their profession in the United States are financially interested in "stylish sanitaria" which exist to treat "dope fiends" and extract enormous fees for fake ministrations and pretended cures. It is known that Dr. Bishop's insistence that drug addiction was a disease and that therefore it must be treated along those pathological lines followed in all cases where disease is proven, set him up, from the first, as the man who was to take up the cudgels against quacks and charlatans masquerading as conscientious medical practitioners. It is further known to those who have the privilege of Dr. Bishop's personal friendship that he is courageous to a fault, and dogged and ruthless in the backing up of his conviction, no matter how celebrated the heads that, as a result of his campaigning, fall into the basket.

Dr. Bishop, believing that drug addiction is a disease, has treated it as a disease. To cure smallpox the practitioner injects the very germ of smallpox. To cure typhoid the doctor uses typhoid bacilli serum. To cure the opiate drug addict, Dr. Bishop, having proven by his own earlier failures the fallacy of cure by mere will-power, continues the addict as long as he deems it necessary in the usage of the very drug which has diseased him. His enemies seize on the only vehicle by which they can, as they think, carry him to professional extinction, and secure his arraignment for violating the Harrison Drug Act, charging that he provides drugs "in excessive amounts and contrary to the legitimate practice." The matter would be ludicrous were its issue not so portentous from the standpoint of the public good.

The hearing should be interesting. That it will vindicate Dr. Bishop's view of the drug addiction menace is not to be doubted; it should do more than that.

BISHOP'S RECORD.

It should awaken legislators in the United States to a sense of alarm at the growing proportions of opiate drug addiction and comparative public inertia and indifference and inactivity in checking this public evil.

The hearing will show in all its splendid detail the fight, against the heaviest kind of odds, that Dr. Bishop has been making for years. State records will be produced by members of the Whitney Drug Committee, which sponsored the present New York Narcotic Law, to combat the allegations. These records show the conversion of State authorities to Dr. Bishop's belief that drug addicts are the victims of a definite disease which cannot be cured by mere will-power. At a series of clinics and hearings Dr. Bishop demonstrated that the present policy of treating addicts as criminals is barbarous and often causes death. Men and women in the highest walks of life in New York willingly submitted themselves to examination at private hearings of the Whitney Committee. They told how they had been imposed on by quacks operating fashionably patronized sanitaria.

Dr. Bishop defeated a series of bills, proposed by what Chairman Whitney called "the charlatans." These stringently prohibited the use of narcotics. If they had been enacted into law, they would have driven thousands of addicts into the widely advertised cure places and "rests" conducted by medical fakirs.

Among wealthy addicts who backed Dr. Bishop in his campaign to discredit the quack addiction experts were judges, lawyers of high standing, actresses and actors now playing on Broadway and well-known society women. The names of these people were given in confidence to Chairman Whitney, who received hundreds of letters from addicts who had been victimized.

Mr. Whitney has testified that Dr. Bishop has been impelled to treat addicts by humane motives, this being a hobby with him. He states that Dr. Bishop took no fees other than expenses incurred in hospitals in the course of experimental treatments.

The activities of Dr. Bishop, according to the Whitney Committee, extended throughout the country. He appeared in Washington to fight quack cure legislation designed to give the so-called sanitaria a monopoly in the distribution of narcotic drugs. He made frequent trips to Washington on this mission and convinced the Internal Revenue Department of the ulterior motives of the bill.

PROVED CLAIM BY TEST.

As a result of Dr. Bishop's insistence, experiments were conducted at Washington, with an addict mother as a subject. It was conclusively proved that a child born to this woman was afflicted with narcotic drug addiction and required the administration of morphine to maintain its health after weaning.

Addiction cures in penal institutions throughout the State and nation were exposed by Dr. Bishop before the Whitney Committee as not only ineffectual, but in most instances barbaric. Patients frequently died under ministration of

these treatments, he showed, while others lost their eyesight and hearing, particularly victims who submitted to the hyocine cure, used in several New York City and State institutions.

The State Narcotic Law, which Dr. Bishop was instrumental in enacting, has been a dead letter. Some potent influence at Albany has prevented the appropriation necessary for its operation. All the department gets is about enough to pay the salaries of its officials. No money is provided for research work, the one factor which was to contribute toward a solution of the problem of drug addiction.

Demands have been made on the Legislature for abolition of this department. Chairman Whitney, who was placed in charge when it was created, was ousted; and officials were put in office who were hostile to the original humanitarian aims of the statute. At present the department is working virtually as an adjunct to the New York City Health Department, which Dr. Bishop has not hesitated to criticize.

It is to be hoped that the hearing of the Bishop case not only brings out the fact of Bishop's splendid record, but the just as important fact as to who are the *men anxious to defeat the practical working out of his disease theory, and why.* It is said that more than one medico who bears an honored membership in the American Medical Association would lose a very excellent income were the quack asylums for drug addiction to be swept away. It is said that several leading American doctors would lose their laurels (and even their practices) were their connection with certain fake patent medicines for supposed cure of drug addiction to be disclosed.

From our standpoint as Canadians, and from the particular standpoint of the professional reader of the *Canadian Medical Monthly,* the Bishop case is most important. The problem of drug addiction in Canada is just as great and just as pressing as it is in the United States. Its rapid progress is, unhappily, one of the unfortunate by-products of the great war. Apparently as little is being done on this side of the border as the other to combat this menace. Indeed, we are even worse off than our Southern neighbor, for here we have no voice crying in the wilderness. Our flock is without its Bishop! The first requisite is that our medical men become alive to the grave situation; that drug addiction is the evil it is and bids fair steadily to grow. The Bishop case should be watched at every point by all Canadian medical men. Such an interest taken in the case might well stimulate argument and discussion as to the right or wrong approach to the whole drug addiction question. Habit or disease; which is it? Once this is determined, diagnosis and treatment will doubtless undergo revision.

And, as a closing thought, where does the newly-created Department of Federal Health stand? What view does it hold as to the menace of drug addiction?

What is it doing?

Anything?

Nothing?

CÆSAREAN SECTION*

INDICATIONS AND LIMITATIONS

B. P. Watson, M.D., Ch.B., F.R.C.S.E., F.A.C.S.

Professor of Obstetrics and Gynæcology, University of Toronto.

I have recently made a review of our hospital statistics on Cæsarean Section. This review fully bears out the views I have held for some time, in common with a great many obstetricians, that the operation is being undertaken by many operators much too lightly, on insufficient indications and without due regard to possible after results. This is largely due to the comparative ease of the actual operation, to the more or less dramatic nature of it, and especially to the enormous number of records in the medical literature of the last few years of isolated cases where the operation has been undertaken for this or that complication of pregnancy or labor, and always, of course, with perfect success—the failures seldom have the light of publicity shed upon them. Now, in judging of the real value of any method of treatment we must discount altogether these isolated cases and base our conclusions on large series of cases, comparing the results in such with those obtained by other methods. This will give us some sort of standard to guide us in our general policy, and when we come to treat the individual case we shall know what sort of a chance we are giving our patient, and what sort of risk we are subjecting her to.

The ideal we aim at as obstetricians is to help bring into the world a healthy, undamaged, living baby, and to restore to activity as quickly as possible a healthy mother, capable of further child-bearing, and not likely to develop any physical disability later.

Let it be granted at once that, were we concerned only with the safety of the child, Cæsarean Section would be the ideal method of delivery in all cases. We would not always get a living baby, for such complications as placenta previa, accidental hæmorrhage and toxæmia may result in the death of the child in utero, even before the onset of labor, but apart from these there is no theoretical reason why a living child should not always be obtained. (See table.)

As regards the second part of our ideal, Cæsarean Section does not hold the same place. Even when done under the very best of conditions it is still attended by an immediate maternal mortality far in excess of that following natural

* Read before the Academy of Medicine, Toronto.

delivery. When it is undertaken for any particular complication it therefore behooves us to satisfy ourselves that we are giving the mother a better chance of life by it than by any other means, and if the chances are about even, then the greater safety of the child should turn the scale in favor of Cæsarean Section. But we must take other things into consideration besides this primary operation mortality. We must consider whether the operation is going to result in the prevention of further child-bearing, or, if further pregnancies should occur, whether it is going to add to the risk of these. Now, when Cæsarean Section is undertaken under certain conditions—especially after prolonged attempts at vaginal delivery, or vaginal manipulations not absolutely aseptically conducted—the only safe thing to do is to follow the operation by an immediate hysterectomy, with consequent sterility. That aspect of the case should receive very careful consideration before any decision is arrived at.

When the uterus is left in situ and a subsequent pregnancy occurs, can the woman pass through a normal labor with no extra risk? This is a most pertinent question in cases where the operation is contemplated for such conditions as placenta prævia, eclampsia, etc., conditions which are not likely to recur in further pregnancies. Now, while I do not hold with the dictum, "Once a Cæsarean always a Cæsarean," we cannot get away from the fact that there is a danger of rupture of the uterus through the scar in subsequent labor. I have delivered three patients in the last two years who had had Cæsarean Sections performed by other operators. All three had perfectly normal labors and puerperia. Rongy ("American Journal of Obstetrics," lxxiv., p. 954) finds from a search of the literature that rupture of the scar occurs in 3% of such cases, and that this accident is attended by a mortality of 50%. So that, to the immediate operative mortality of Cæsarean Section undertaken for conditions other than obstruction in the passages, we must add a further 1.5% to cover the subsequent history of these patients. Rongy believes that in 75% of cases the dictum, "Once a Cæsarean always a Cæsarean," holds. With greater care in suturing the wound and absence of infection there is no doubt that this percentage ought to be greatly lowered.

Keeping the foregoing considerations before us, let us now try to arrive at some general conclusion regarding the advisability of the operation in the different conditions for which it has been advocated. In each class of case we must try to keep before us constantly the probable immediate and ultimate result as regards the mother, the child, and the possible children that may come later.

The various conditions which of late years have been regarded as justifying Cæsarean Section by different operators will be taken up. These may be tabulated as follows:—

1. Contracted or deformed pelvis, impeding the passage of the living child.

2. Tumors of the pelvis or soft parts, impeding the passage of the living child.

3. Conditions of the soft parts, such as cicatrices, resulting from former labors or operations, and unyielding condition, such as is met with in elderly primiparæ, all of which may obstruct the passage of the child.

4. Displacements of the uterus, such as follow ventral fixation, and which alter the axis of the uterus.

5. Malpresentations and malpositions of the child, such as transverse, breech, brow, face, occipito posterior, etc.

6. Hæmorrhage from the normally situated placenta and from placenta prævia.

7. Eclamptic toxæmia.

8. Heart and lung conditions of the mother likely to be severely aggravated by the stress of labor.

(1) Contracted or Deformed Pelvis.

This has been the most frequent indication up to the present time, and is likely to remain so for a long time to come. When the conjugata vera is less than 7.5 cm. the indication is absolute. No full term child, living or dead, could be born through such an inlet. The only way in which the life of the mother can be saved is by Cæsarean Section. With a conjugata vera between 7.5 cm. and 9 cm. the proper mode of delivery in the vast majority of cases will be by Cæsarean, but there are border-line cases with a conjugate around 9 cm., and between that and 10 cm., where very careful observation is called for to decide the proper procedure to adopt. I am sorry to have to mention figures in this connection, for after all it is not a question of the actual size of the pelvis, but of the relative size of the pelvis and the fœtal head, and the decision may be made for or against Cæsarean Section, not by the size of the diameters of the pelvis, but by those of the fœtal head. Accurate pelvimetry should never be neglected, and where we find that there is some degree of contraction or deformity we should take that as a warning that we have to keep careful watch on the patient during the last two months of pregnancy. That watch involves examinations at frequent intervals to determine the possibility of fitting the head into the pelvic brim. In those border-line cases you cannot make up your mind (at, say, the sixth month) that they must be delivered by Cæsarean Section. Frequent examinations by abdominal palpation and by the Mueller-Kerr procedure must be made; only by that means will one be able to decide whether the best chance for the mother and child is afforded by the induction of premature labor, by natural delivery at term, or by Cæsarean Section.

CAESAREAN SECTION

*95 Operations by 13 Operators.

Total maternal mortality, 13.6%; total fœtal mortality, 16.8%.

Indications	No.	Maternal Deaths	%	Fœtal Deaths	%
Contracted pelvis	50	2	4	2	4
Eclampsia	17	5	29.4	3	17.3
Antepartum Hem.	12	2	16.6	7	58.3
Heart and lung disease	3	2	66.6	0	0
Elderly Primipara	2	1	50	0	0
Malpresentations	4	0	0	0	0
Uterine fibroid	2	0	0	1	50
Malformed uterus	2	0	0	1	50
Acute Appendicitis	1	0	0	0	0
Adhesions	1	0	0	1	100
Ruptured uterus	1	1	100	1	100

*These include all the Cæsarean operations performed in the Toronto General Hospital by members of the Obstetrical Staff in the Public and Private Wards and by doctors not members of the Staff in the Private Wards.

When the public has been educated regarding the importance of medical care during pregnancy, and when we, as a profession, are prepared to give adequate supervision such as I have mentioned, a very large number of women who now undergo it will be spared the Cæsarean operation and be delivered of healthy children with a minimum of trauma to themselves by induction of labor before or near term. It must always be remembered that it is these border-line cases which supply the large mortality from the Cæsarean operation. In the absence of pelvic measurement and of estimation of relative size of the head to the pelvis, they are allowed to go into labor at or after term. The labor drags on, attempts may be made to deliver by forceps, and when these fail recourse is had to Cæsarean Section. Under such conditions the operation is attended by very high mortality—varying from 10% to 20%. The only way in which the mortality can be lessened is by following the section by hysterectomy. In definitely infected cases this is the only safe procedure, and in doubtfully infected ones it may frequently have to be done, and that, of course, is the end of the patient's child-bearing. In the treatment of those border-line cases, if they are allowed to go into labor, every possible aseptic precaution ought to be taken. Internal examinations are seldom necessary, and when needed should be made

by rectum. Dilatation of the cervix is often slow, and must be allowed to complete itself naturally, the patient being carried along by morphine-hyoscine narcosis. When the second stage is entered upon plenty of time must be given for the head to engage and to be moulded through the pelvis. When one's mind is made up to be conservative in such cases, one must be radical in one's conservatism. To attempt to deliver such a head by the high forceps operation is to court disaster. The child, when delivered, will almost certainly be dead, and the mother is being exposed to a risk not less than that from Cæsarean Section done at the time of election. If the head fails to mould through and every aseptic precaution has been observed and the child is still alive, Cæsarean Section may be done with slightly greater risk than if it had been done before or at the onset of labor. On the other hand, if attempts have been made at delivery under circumstances which make it likely that infection has occurred, there is a choice of two procedures,—Cæsarean Section, followed by hysterectomy, or craniotomy. In such cases I should choose the latter in a primiparous patient, even if the child were alive, so as to preserve the possibility of further child-bearing under more favorable conditions. Pubiotomy has a place in such cases, although the risk of that operation is also greatly increased by the previous interference.

To sum up, in contractions of the pelvis with the conjugata vera below 7.5 cm., always do a Cæsarean Section before, or at the onset of labor. With contractions of lower degree, estimate the relative size of the head to the pelvis, and if there is marked disparity, perform Cæsarean Section at the time of election. When watching the patient in the last two months of pregnancy induce labor before such a disparity is evident. In the conduct of all such labors observe the strictest aseptic precautions, having before you always the possibility that a Cæsarean Section may be required. In the absence of such precautions failure to deliver will usually indicate craniotomy, as the risk of pubiotomy even is too great.

The statistics quoted by Beck, from the Long Island Hospital, Brooklyn (A.J.O., V. 79, p. 197), show the difference in mortality of Cæsarean Section in cases handled outside and inside the hospital. In 19 cases which had been handled outside, the mortality was 16%; in 18 cases which had been handled entirely inside, the mortality was a little over 1%. These figures are a very fair index to what is happening all over the country, and to my mind justify a craniotomy operation in certain cases, even when the child is alive. In the Toronto General Hospital, in the last six years, 50 Cæsarean Sections have been performed for various degrees of contracted pelvis, and our total mortality has been: maternal, 4%; and fœtal, 4%. (See table.) One of the maternal deaths was in a case where the operation was done after attempts at forceps delivery had failed.

(2) Tumours of the Pelvis or Soft Parts, Impeding the Passage of the Living Child.

The tumours which most frequently obstruct the passage of the child are interstitial fibroids, growing from the lower uterine segment or cervix, or pedun-

culated tumours, growing from the body of the uterus; ovarian tumours, especially dermoids, which always have a tendency to fall down into the Pouch of Douglas, probably owing to their weight. In such cases where the tumour cannot be pushed up above the presenting part, the proper procedure is to perform a Cæsarean Section and then remove the tumour. In the case of fibroids this will nearly always involve the removal of the body of the uterus as well. It is seldom possible to do a myomectomy in such cases. This, however, may be done in some cases during pregnancy. It is seldom advisable to attempt the removal of the ovarian tumours through the posterior fornix. There have been successful cases, but the risk of meeting with adhesions and of having extensive hæmorrhage from the slipping of the pedicle, during the subsequent labor is greater than that of the abdominal operation.

(3) Conditions of the Soft Parts, Such as Cicatrices Resulting from Former Labors or Operations, and an Unyielding Condition, Such as is Met With in Elderly Primiparae—all of Which May Obstruct the Passage of the Child.

Under this heading we may class such conditions as cicatrisation of the cervix following laceration repair or amputation. Personally, I have never felt myself called upon to perform the operation for these conditions. Recently I confined a patient who had had a very extensive laceration with her first child, the delivery had been an instrumental one, and the child was born dead. The cervix was deeply torn, and in the process of healing had become adherent to vaginal vault, with the formation of a great deal of scar tissue. She was delivered by Cæsarean Section by another operator three years later. She consulted me regarding the possibility of having a child by normal delivery, and I told her I thought she could. She went through the first stage very easily and gave birth to a healthy nine-pound child in spite of the presentation being a breech one. After amputation of the cervix there may be difficulty in the first stage, but so far I have not met with it.

In this group of cases we include the elderly primipara. I confess to having performed Cæsarean Section on two women, both over forty years of age, and pregnant for the first time, the oldest being 43. We all know of primiparous patients of that age coming through normal labor comparatively easily, but there is a certain type where atrophy and shrinking of the vaginal wall and cervix has begun, and where the muscle action of the uterus is presumably feeble. The likelihood of such a patient becoming pregnant again is small; it is therefore important that the child should be living and healthy. Under the best of conditions delivery by the vagina would always be difficult and instrumental, with possible injury to the child and considerable laceration of the mother. The best result in such a case will undoubtedly be got by Cæsarean Section, performed at the time of election.

(4) Displacements of the Uterus, Such as Follow Ventral Fixation and Which Alter the Axis of the Uterus.

Fortunately we see few of these cases, now that the old operation of ventral fixation in women of child-bearing age has been abandoned by all who know anything about obstetrics. If the displacement of the uterus is such that the external os is directed backwards, or backwards and upwards against the sacrum, Cæsarean Section is the only possible mode of delivery.

(5) Malpresentations and Malpositions of the Child, Such as Transverse, Breech, Brow, Face, Occipito Posterior, etc.

Scattered through the literature of recent years there are reports of cases such as the above, delivered by Cæsarean Section, but I do not think there is one recorded by any obstetrician of repute. To perform Cæsarean Section on those indications is a confession of obstetrical ignorance. In neglected transverse presentation it might be necessary, to prevent the rupture of the uterus. Breech presentations constitute 3-4% of all cases. The maternal mortality should not be more than .47%, and the fœtal has been stated as 9.4%. The maternal mortality for Cæsarean Section in such cases is from 2-4%—(McPherson, A.J.O., V. 74, p. 776). When we take that and the future disability of the patient into consideration, the operation is condemned. There are, of course, certain cases of breech presentation in patients with a moderate degree of pelvic contraction; in such cases the operation may be justified.

(6) Accidental Haemorrhage and Placenta Praevia.

During the last few years it has come to be recognized that Cæsarean Section offers the best hope of safety to the mother in certain of these cases, and certainly holds out a better chance for the child. In severe fulminating cases of concealed accidental hæmorrhage, where the patient is suddenly seized with acute abdominal pain, accompanied by great distension and tenderness of the uterus and symptoms of internal hæmorrhage, it is practically the only procedure which will save life. In such cases it is almost invariably found that the uterus is so damaged by the hæmorrhage into its walls, that, as pointed out by Williams, its immediate removal by hysterectomy is called for. In these the chances of saving the child are remote, as it usually perishes before the operation can be performed. From the above type of severe case, there are gradations down through the milder types to the case where there is merely a little extra showing of blood during the labor, and perhaps a little uterine tenderness. In these, the judgment of the obstetrician must guide him in his choice between Cæsarean Section and the other methods of treatment available, such as rupture of the membranes, tamponnade, together with abdominal binder, vaginal Cæsarean Section, etc.

In placenta prævia, if we are to believe certain writers, no method of treatment other than Cæsarean Section has a place, and yet, when we come to look

critically into the subject we do not find that it makes such a very good showing. The average maternal mortality in all types of cases of placenta prævia treated otherwise than by Cæsarean Section is from 5 to 7%, whilst the fœtal mortality ranges from 45 to 75%, according as the treatment has been, by bag or by version. In a collected series of cases treated by Cæsarean Section the maternal mortality was 9%. In the Toronto General Hospital the mortality was 11% in a series of nine cases operated on by six different operators. The fœtal mortality was 44.4%. In a larger series of cases the fœtal mortality would undoubtedly be better than that, but it will always be comparatively high for the great majority of children are premature. Probably only about 32% of the patients we treat for placenta prævia are at term. According to the best available statistics, then, Cæsarean Section could be urged as a routine treatment of all types of placenta prævia only on the plea that it would save a few more children. Balance against that the slightly higher maternal mortality and the disability as regards future child-bearing which the operation entails, and I think we must conclude that the argument is not conclusive.

On the other hand, we must concede that Cæsarean Section is the very best available means of treatment in certain cases. The indications are very well summarized by Beach (A.J.O., lxxvi., p. 57) as follows:—

1. Elderly primiparæ with placenta prævia of any type, and this probably the only chance of having a child.
2. Central placenta prævia in primiparæ.
3. Central placenta prævia in multipara with no living child.
4. Placenta prævia with contracted pelvis.
5. Placenta prævia with a very rigid cervix (very rare).

That is perhaps an ultra-conservative statement of the indications, but in main it is a good one. There is no question but that Cæsarean Section is probably the easiest method of treatment for the operator, but that is no argument if more arduous and more difficult procedures, such as tamponnade, the use of hydrostatic bags, or Braxton Hicks' version give slightly better immediate maternal results in the average case.

In a very large number of placenta prævia cases there has been a good deal of vaginal manipulation before the patient enters the hospital, and that unquestionably contributes to the high mortality following Cæsarean. In cases considered suitable for the operation there should be a minimum of handling, and the operation should be undertaken at the earliest possible time after the diagnosis has been made and the child considered viable. In some of the cases where hæmorrhage persists after the removal of the placenta, hysterectomy may be required.

(7) Eclamptic Toxaemia.

In discussing Cæsarean Section for eclampsia we are at once led into the controversy of operative versus conservative treatment. In no other condition

in obstetrics do we find two schools so diametrically opposed to each other as regards treatment. The one holds that no operative treatment is called for other than medium or low forceps or breech extraction, and the other, that no matter what the stage of pregnancy or labor, the uterus must be emptied by some means or other. Both bring forward masses of statistics to uphold their arguments. We cannot help thinking that with such divergent views the truth may lie somewhere between. So far as recent statistics go those advocating conservative treatment undoubtedly have the better of the argument. Ross McPherson (A.J.O., lxxvii, p. 58) states that the maternal mortality of eclampsia in the Sloane Maternity under strictly conservative treatment was 14.5%, and in recent cases it has been reduced to 12% maternal and 34% fœtal. Zinke had a maternal mortality of 13.3%, Buffalo General Hospital 12%, Tweedy in Dublin 9%, and Stragonoff, who has probably done more than anyone to standardize conservative treatment, 6.6%. Against those figures place those relating to the results after Cæsarean Section. Peterson, in 500 collected cases treated by Cæsarean, found a maternal mortality of 34.8%; Davis, in 11 cases, 30.7%; Kellitz, in 28 cases, 50%. In the Toronto General Hospital, in 17 operations by eight operators, 29.4%. (See table.)

Even granting that most of the Cæsarean Sections were done in very severe cases, which would have died under any form of treatment, these figures must make us pause and consider very carefully whether the operation has any place at all in the treatment of eclampsia. I confess that in the acute fulminating type, with no prodromal symptoms, other than perhaps acute epigastric pain, I am inclined to perform the operation if the patient is a primipara and not in labor, or in a very early stage of labor. I have done so in two cases in the last three years; both children survived, but one mother died. In the other cases I feel that in the future I must give conservative treatment a fair chance. Up to the present I feel that we have not carried out the details with sufficient care, and perhaps some of you may feel the same. The essentials of the treatment in brief are:—Morphia gr. ½, to start with, and then gr. ¼ each hour until the respirations fall to 8 per minute, free gastric lavage, administration of castor oil, free colonic irrigation with soda bicarb., and glucose 5%, with absolute quietness and darkness in the room. With the recent results of this treatment before us I think we must admit that Cæsarean Section, or other forms of forcible delivery, is not justified in the vast majority of cases, and so far as I am concerned it will be reserved for the type of fulminating case I mentioned.

(8) Heart and Lung Conditions Likely to be Aggravated by the Stress of Labor.

Regarding these complications, little need be said. The question of Cæsarean Section versus natural delivery must be answered according to the effect of the disease on the general nutrition and resistance of the patient. There are risks by either method, and too often it is only a choice between two evils. Dur-

ing the past year in the Toronto General Hospital three patients were operated on, one with bad valvular disease of the heart, and one with advanced pulmonary tuberculosis died.

In my presentation of the subject I hope you do not consider me too condemnatory of the operation. I do not intend to be. It is an operation which, when undertaken under proper conditions and for adequate indications, is one of the most satisfactory in surgery, saving, as it so often does, two lives which would otherwise be sacrificed, or gravely imperilled. But do not allow it to fall into disrepute by asking from it more than it can give.

REPORT OF A CASE OF SEPTIC SINUS THROMBOSIS, WITHOUT INVOLVEMENT OF THE MASTOID

By St. Julien R. de Caradeuc, M.D.

Jour. A.M.A., Vol. 72, No. 18, May 3rd, 1919.

The author reports a case of bilateral middle ear inflammation during an attack of influenza. Myringotomy was early resorted to, and boric acid irrigation carried out every two hours. The apparent course of the aural inflammation was not unusual. Three weeks following the initial earache both canals were dry and the drumhead almost normal. A few days later the patient complained of pain on the left side of the face, and a little later had a definite chill with a rise of temperature to 105.2, severe headache and a profuse sweat, white blood count 23.3000, polymorphonuclear 93%, and a positive blood culture of strephtococcus hæmolyticus.

There was no mastoid tenderness at any time, nor were there any signs on aural examination that suggested any mastoid involvement. General examination failed to discover any cause for the patient's condition. Though the blood cultures became negative, operation on the mastoid was decided upon. (No note is made as to which ear was operated upon, or on what grounds one was selected.) The mastoid cells were normal, and there was no pus in the antrum. The sinus was exposed, but there did not appear to be any disease in it, so the dura of the tempro-sphenoidal lobe was exposed and found normal. Further examination of the lateral sinus was then carried out, and on incision thick pus exuded and continued as from an abscess. The jugular was then resected in the neck. A culture of the pus from the sinus showed a pure growth of streptococcus hæmolyticis. Recovery was uneventful.

(This is evidently a case where the infection to the lateral sinus was conveyed by small veins from the mastoid which, at the height of the middle ear inflammation, was also involved.

Both the antral mucosa and the tympanitic mucosa were able to overcome the infection without any actual destruction of bone, and the disease in these cavities was cured. This, however, did not occur in the communicating veins and the lateral sinus where an abscess recurred.)

Perry Goldsmith.

VACCINATION

C. K. Whitelock, M.D., Saskatoon, Sask.

The localized outbreaks of smallpox in various parts of the country bring to mind the work of Edward Jenner, the discoverer of vaccination. A study of his work and a careful consideration of the history of this disease would give food for thought to anti-vaccinationists, whose agitations are given a certain prominence in the news of the day.

Edward Jenner was born at Berkeley, Gloucestershire, England, on May 17th, 1749. On completion of school life he was apprenticed to a local surgeon. In 1770 he went to London to become a pupil of that great surgeon and anatomist, John Hunter. In 1773 he took up practise at Berkeley. He died of apoplexy in London in 1823.

Early in his career he began to notice the phenomena of cowpox, a disease common in rural England at that time. It was a popular belief among the peasantry that a person who had had an attack of cowpox was thereafter safe from the infection of smallpox. It is said that a young girl consulted Jenner about something or other, and during the interview made the remark that she could not take smallpox, because she had already had cowpox. This remark made a lasting impression on Jenner's mind. He made his first experiment in vaccination about 1796. In that year he inoculated a boy with cowpox, and upon his recovery with smallpox. The boy did not take the latter disease.

The reception by the medical profession of the publication of Jenner's experiments and their results was extremely discouraging. Opposition to his theory has never completely died away, and is still active, in spite of the light thrown upon the subject by the experience of years.

From time immemorial Circassian women have infected their children with smallpox, by making an incision in the arm and introducing a pustule taken from another case. It may have been more or less of a business proposition with them. It is well known that the Circassians were poor, and that their daughters were beautiful. They furnished the annual crop of beauty for the harems of Turkish Sultans and nobles. They were well instructed in all arts and devices which might entertain their intended masters. Occasionally it happened that after years of care and training the valuable piece of human merchandise would be made valueless by an attack of smallpox; for no person would buy a slave disfigured by this disease. Consequently, if the beauty of two or three girls was thus marred the family might be ruined financially. Since a trading nation

always watches carefully its own interests, and since one of the chief articles of merchandise in Circassia was women, therefore it behooved them to find some way of preventing the destruction of the value of such merchandise by disease. By observation and experience that no person ever had severe smallpox twice, they found that the production of artificial smallpox, by the means described above, gave the desired protection. Consequently, when smallpox had left the country the inhabitants were greatly worried, for they had no source of supply of infectious material other than cases which occurred.

It has been said that the Circassians borrowed this custom from the ancient Arabians. No definite information is available. The Turks soon copied it, and inoculated their children soon after they were weaned. The Chinese have practised inoculation for centuries; but it is done through the nose instead of by incision, the dried scabs being introduced after the manner of taking snuff. It remained for Jenner to put the practise on a scientific basis. This is all historical, and more or less dry and uninteresting; but what I am trying to show is, that the ancient peoples had more sense, apparently, than we who live in this enlightened age.

Jenner's observations led him to think that the grease, a disease of the heels of the horse, and cowpox were identical. We know, of course, that this is incorrect, for it has since been disproved. This does not affect the main consideration, and his conclusion that cowpox affords protection against smallpox holds good. However, he observed that an outbreak of the grease was usually followed by an outbreak of cowpox, and concluded that the nature of the infection was the same in both cases. Carelessness on the part of the attendants was the means by which the infection was spread. The milking was done by the farm hands, and if one of these who was attending a horse with the grease should help with the milking, he spread the disease from the horse to the cow. From the cow it was spread to the human victims. The disease appeared on the nipples of the cow, and has been described as being in the form of irregular pustules of a palish blue color, or somewhat approaching to the livid, and surrounded by an erysipelatous inflammation. These pustules frequently degenerated into phagadenic ulcers unless treated, and were very troublesome. The indisposition interfered with the secretion of milk, which was lessened. The domestics, being infected from the cows, pustules appeared on the hands and wrists, proceeding quickly to suppuration and ulceration, after first assuming the appearance of vesication produced by a burn. Absorption occurred, and tumors appeared in the axillæ. Systemic symptoms were produced, as chills, fever, increased pulse rate, lassitude, pains in the limbs and loins, vomiting. Headache was common, and occasionally delirium. These symptoms lasted a few days and then gradually subsided.

A few histories of Jenner's cases are quoted in support of his contention.

"Case I. Joseph Merret, now an undergardener to the Earl of Berkeley.

lived as a servant to a farmer near this place, in the year 1770, and occasionally assisted in milking his master's cows. Several horses belonging to the farm began to have sore heels, which Merret frequently attended. The cows soon became afflicted with cowpox, and soon after several sores appeared on his hands. Swelling and stiffness in each axilla followed, and he was so much indisposed for several days as to prevent his following ordinary employment. Previous to the appearance of this distemper among the cows there was no fresh cow brought in to the farm, nor any servant employed who was affected with the cowpox. In 1795, a general inoculation taking place here, Merret was inoculated with his family, so that a period of twenty-five years had elapsed since his having the cowpox. However, though variolous matter was repeatedly inserted into his arms, I found it impracticable to infect him with it; an efflorescence only, taking on an erysipelatous look about the centre, appearing on the skin near the punctured parts. During the whole time his family had the smallpox, one of whom had it very full, he remained in the house with them ,but received no injury from the exposure to the infection."

"Case II. Sarah Portlock, of this place, was infected with the cowpox when a servant at a farmer's in the neighborhood, twenty-seven years ago. In 1792, conceiving herself from this circumstance secure from the infection of the smallpox, she nursed one of her own children who had accidentally caught the disease, but no indisposition ensued. During the time she remained in the infected room variolous matter was inserted into both her arms, but without any further effect than in the preceding case."

"Case III. John Phillips, a tradesman of this town, had the cowpox at so early a period as nine years of age. At the age of sixty-two I inoculated him, and was very careful in selecting matter in the most active state. It was taken from the arm of a boy just before the commencement of the eruptive fever, and instantly inserted. An efflorescence appeared which on the fourth day was extensive, and some degree of pain and stiffness was felt about the shoulder; but on the fifth day these symptoms began to disappear, and in a day or two went entirely off without producing any effect on the system."

"Case IX. Although cowpox shields the constitution from smallpox, and smallpox is a protection against its own future poison, yet it appears that the human body is again and again susceptible to the infectious matter of the cowpox, as the following history will show: William Smith, of Pyrton, in this parish, contracted the disease when he lived with a neighboring farmer in the year 1780. One of the horses belonging to the farm had sore heels, and it fell to the lot of Smith to dress him. By these means the infection was carried to the cows, and from the cows it was communicated to Smith. On one of his hands there were several ulcerated sores, and he was affected with the symptoms before described. In the year 1791 the cowpox broke out at another farm, where he was then as a servant, and he became affected with it a second time. In the year 1794 he was so unfortunate as to catch it again. The disease was equally

as severe the second and third time as it was on the first. In the spring of the year 1795 he was twice inoculated, but no affection of the system could be produced by the variolous matter, and he has since associated with those who had the smallpox in its most contagious state without feeling any effects from it."

"Case XVII. The more accurately to observe the progress of the infection, I selected a healthy boy about eight years old for the purpose of inoculation for the cowpox. The matter was taken from a sore on the hand of a dairy maid, who was infected by her master's cows, and was inserted on the 14th of May, 1796, into the arms of the boy by means of two superficial incisions, barely penetrating the cutis, each about half an inch long. On the seventh day he complained of uneasiness in the axilla, and on the ninth day he was a little chilly, lost his appetite and had a slight headache. During the whole of the day he was perceptibly indisposed and spent the night with some degree of restlessness, but on the following day he was perfectly well. The appearance of the incisions in their progress to a state of maturation was much the same as when produced in a similar manner by variolous matter. The only difference which I perceived was in the state of the limpid fluid arising from the action of the virus, which assumed a darker hue, and in that of the efflorescence spreading round the incisions, which had a more erysipelatous look than we commonly perceive when variolous matter has been made use of in the same manner; but the whole died away, leaving on the inoculated parts scabs and subsequent eschars, without giving me or my patient the least trouble."

"In order to ascertain whether the boy, after feeling so slight an affection of the system from the cowpox virus was secure from the contagion of the smallpox, he was inoculated the 1st of July following with variolous matter immediately taken from a pustule. Slight punctures and incisions were made on both his arms, and the matter carefully inserted, but no disease followed. The same appearances were observable on the arm as we commonly see when a patient has had variolous matter applied, after having either the cowpox or smallpox. Several months afterwards he was again inoculated with variolous matter, but no sensible effect was produced on the constitution."

"Although I presume it may be unnecessary to produce further testimony in support of my assertion that the cowpox protects the human constitution from the infection of the smallpox, yet it affords me considerable satisfaction to say that Lord Sommerville, the President of the Board of Agriculture, to whom this paper was shown by Sir Joseph Banks, has found upon inquiry that the statements were confirmed by the concurring testimony of Mr. Dolland, a surgeon who resides in a dairy country, remote from this in which these observations were made. With respect to the opinion adduced that the source of the infection is a peculiar morbid matter arising in the horse, although I have not been able to prove it by actual experiments conducted under my own eye, yet the evidence adduced appears sufficient to establish it."

"Should it be asked whether this investigation is a matter of mere curiosity, or whether it tends to any beneficial purpose, I should answer that, notwithstanding the happy effects of inoculation, with all the improvements which the practise has received since its first introduction into the country, it not very unfrequently results in deformity of the skin, and sometimes under the best of management, proves fatal."

"Thus far have I proceeded in an inquiry founded, as it must appear, on the basis of an experiment, in which, however, conjecture has been occasionally admitted, in order to present to persons well situated for such discussions, objects for a more minute investigation. In the meantime I shall myself continue to prosecute this inquiry, encouraged by the hope of its becoming essentially beneficial to mankind."

In justification of such experimentation with human subjects, it must be remembered that at that time the inoculation of smallpox matter into healthy individuals was an acknowledged method of preventing the disease. With such proof as this Jenner put a popular belief on a scientific basis. He showed that cowpox is a trivial disease, readily transferable from man to man, and that it protects against smallpox. The evidence was complete, and having proved it to his own satisfaction, he offered it to the Royal Society, of which he was a Fellow. It was refused. He published his results as a book in 1798.

It is hard for us to realize now that smallpox was once more common than measles, and much more fatal. It existed many centuries B.C. in China. The Pests Magna described by Galen, and of which Marcus Aurelius died, is supposed to have been smallpox. It prevailed in the sixth century, and obtained a wide distribution during the time of the Crusades. The first accurate account of it was given by Rhazes, who lived in the ninth century, although previous to that it had been vaguely described by some of the church fathers. In the eighteenth century almost everybody had it. Parents used to expose their children to the infection in order to have it over with, as used to be the case in not very ancient times with measles. Thus formerly it was a disease of childhood. Now, since the child is protected by vaccination, it is more prevalent among adults.

It has been estimated that during 25 years of the eighteenth century 15,000,000 people died of smallpox, and that during the whole century 60,000,000 persons were destroyed by the disease.

Smallpox was brought to America by the Spaniards. In Mexico, within a short period, three and one-half millions of persons are said to have died from it. It has been stated that of 12,000,000 American Indians, 6,000,000 fell victims to the disease.

Smallpox has destroyed peoples; it has wiped out cities; it has upset empires. It has been a universal scourge. It is still as serious as in times gone by, but is controlled by vaccination. It thrives wherever the infection is carried, and wherever it finds susceptible people. Three hundred and forty-six thousand five hundred and twenty persons died of it in sixteen countries during the period

from 1893 to 1897. Of this number, Russia alone lost 275,502. During the Franco-Prussian War all the men of the German army had been vaccinated against smallpox. The French army was not so protected. The former lost only a few hundreds from this disease. The latter lost somewhere about 23,000 men. In the Great War just closed the British army, including the men from the colonies and great dominions, were vaccinated against smallpox, with the result that the disease was almost unknown.

The experience of years shows convincing proof of the difference in morbidity and mortality, between the vaccinated and those not so protected. It has been shown that in thousands of cases of smallpox occurring the world over the mortality among the unvaccinated is from five to sixteen times as great as among the vaccinated.

Vaccination in times past meant a procedure to establish protection against infection by smallpox. Now it applies to the production of immunity against pneumonia, typhoid fever, tetanus, and several other diseases.

Most of us can remember the almost universal prevalence of typhoid fever. It is not long since this was one of the most widespread and fatal diseases with which we had to deal. I think it was Osler who said, "Wherever men are congregated together without making adequate provision for the disposal of their excreta, typhoid will occur." This is true, especially in armies, where the sanitary arrangements cannot, through force of circumstances, be as elaborate as may be necessary. Surely anything which would prevent this disease would be of inestimable benefit. We have such protection in typhoid vaccine. In the South African War the British army was approximately 500,000 men. The deaths from typhoid alone numbered some 20,000 or more. In the World War just over, the Canadian Army Corps was approximately half a million strong. The deaths from typhoid were few, and the number of cases was about 300. The Canadians were vaccinated against typhoid, while in the South African campaign no such protection was furnished.

As early as 1807 vaccination was made compulsory in Bavaria, and since that time most European Governments have compelled the practise, or, at least, encouraged it. The result is that smallpox has ceased to be the scourge it was before Jenner's discovery. Some among us have, apparently, not arrived at that stage of enlightenment and intelligence where we can appreciate the importance of vaccination. Why will people, supposedly intelligent and enlightened, disregard the evidence of centuries of experience, and blindly submit themselves to possible annihilation? Is it ignorance, superstition, or just plain cussedness? Smallpox is a most loathsome disease, leaving its victims who recover, disfigured, some blinded, some crippled in other ways, or with some debility the cure of which is doubtful. It is true that there are some instances of persons who have been vaccinated and re-vaccinated and have later become infected with the disease, but they are very few. It is also true that there are instances of persons who have had smallpox and contracted the disease a second time at a later period

in life. This does not affect the fact that in a vast majority of cases the protection afforded by vaccination is absolute. In my opinion vaccination ought to be made compulsory by law. If we do not vaccinate, what other protection have we; or what means of stamping out this scourge? There are none so blind as those who will not see.

Ontario Medical Association

SECTION OF MEDICINE

Preliminary Announcement for Fortieth Annual Meeting

Toronto, May 25, 26, 27, 28, 1920

Dr. E. C. Rosenow, Mayo Foundation, Rochester.	Studies on Influenza.
Dr. A. W. George, Asst. Instructor, Dept. of Rœntgenology, Tuft's College Medical School, Boston.	X-Ray as an Aid in the Interpretation of Symptoms referable to the Biliary System.
Dr. Chas. F. Martin, Prof. of Clinical Medicine, McGill University.	Psychiatry, from the standpoint of the General Practitioner.
Dr. J. W. Crane, Dept. of Pharmacology, Western University, London.	Dietetic Treatment of Infections.
Dr. A. H. Caulfield, Clinician to Dept. of Medicine, Toronto University, and Dr. G. E. Richards, Radiologist, Toronto General Hospital.	A Comparison between the interpretation of the findings in Chronic Pulmonary Lesions by Clinical and Stereo-Rœntgenographic examination.
Dr. J. G. Fitzgerald, Prof. of Hygiene, University of Toronto.	Analysis of Diphtheria Deaths in Ontario.
Dr. George Pirie, Assoc. Attending Physician, Hosp. for Sick Children, Toronto.	Vomiting and Constipation in Infancy.
Dr. Jabez H. Elliott, Physician Chest Clinic, St. Michael's Hosp.; Asst. Physician Chest Clinic, Hosp. for Sick Children, Toronto.	Pregnancy a Menace to the Tubercular Mother.
Dr. Norman B. Gwyn, Clinician to Dept. of Medicine, Toronto University.	Clinical Side of Empyema in Influenza.
Dr. J. E. Kidd, London, Ont.	Acidosis in Influenza Pneumonia.
Dr. W. R. Campbell, Clinician to Dept. of Medicine, Toronto University.	Renal Functional Tests for the General Practitioner.
Dr. E. A. Morgan, Assoc. Attending Physician, Hosp. for Sick Children, Toronto.	Diarrhœa in Infancy (General management and treatment).
Dr. N. M. Keith, Clinician to Dept. of Medicine, Toronto University.	The Treatment of Renal Disease in regard to the Newer Functional Tests.
Dr. G. A. Davis, Toronto.	Interval Methods of Feeding.
Dr. D. King Smith, Dept. of Dermatology, Toronto General Hospital, and Dr. Emerson Trow, Asst. in Clinic of Diseases of Skin, Toronto General Hospital, and Dr. H. A. Dickson, Clinical Asst., Dept. Skin, Toronto General Hospital.	Presentation of some interesting cases of Diseases of the Skin.
Dr. C. H. Robson, Anæsthetist, Hosp. for Sick Children, Toronto.	Intratracheal Anæsthesia (with exhibition of apparatus).
Dr. R. D. Defries, Dept. of Hygiene, University of Toronto.	Viability of the Vaccine Virus.

THE TREATMENT OF ECLAMPSIA*

Observations, Methods and Results in Some Fifty-three Consecutive Cases, With 3.7% Mortality.

GORDON G. COPELAND, B.A., M.B.

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Eclampsia, the culminating event in certain toxæmias of pregnancy, is one of the most serious diseases from which the child-bearing woman can suffer. Considering the country as a whole, the maternal mortality ranges from 20 per cent. to 30 per cent. according to the most recent textbooks such as Cragin, DeLee and Sheares. The fetal mortality is probably over 50 per cent. This appalling death rate is, to a very large extent, unnecessary and preventable. Careful and frequent antenatal examinations of the blood pressure, the urine, and the progressive history and inspection of the pregnant woman give us very reliable data, easily obtained, as to whether a toxæmia is present and also whether it is progressing, and hence warn of threatening convulsions. Usually for weeks before this disaster occurs, the warning signals are displayed to those who look for them. Eclampsia seldom comes from a clear sky, but rather flashes out from the dark storm-cloud background of a rising toxæmia.

Prenatal care, honestly conducted, and by that I mean the full investigation of the woman, her blood pressure, and a urine analysis, the skilful questioning as to the amount of urine passed, the character of the bowel movements, the presence of headaches, eye symptoms, edema, pain, breathlessness, etc., the detection and removal of foci of infection as in oral sepsis, the necessary dietary changes, and other details suggested by the woman's appearance, or history, or as a result of facts brought out upon examination, and the modification of her habits of life as may seem indicated as gestation advances, with more frequent examinations and change of treatment should these seem advisable, and the *timely termination of pregnancy should treatment fail*, are methods which, if carried out faithfully and scientifically by the doctor, and sincerely co-operated in by the patient, will almost always prevent eclampsia.

That I am able to tell you of over fifty consecutive cases personally treated in the last five years, not to mention many others I have seen but not treated, is a matter of sincere regret to me, for it shows on the one hand how very care-

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less some medical men have been, and, on the other hand, how ignorant and foolish many women still are. To have saved over 95 per cent. of these women, all of whom were serious cases, many of them desperate indeed, gives me cause for thankfulness, but the great pity of it is that such a large number of women should ever have reached such a terrible state. I feel morally certain that had I had these women under my care from early in pregnancy and had they followed my advice, practically all would have escaped the tragedy, and many babies could have been saved. For the most part, the methods I use are all more or less generally employed by modern obstetricians, though perhaps not in just the same order and exclusiveness as I have worked with. I have combined into my own flexible system, those procedures which seemed to me to be the most reasonable, essential and simple from among the several excellent methods of treatment which I have personally studied and seen used in the Sloane Woman's Hospital, New York; The Rotunda Hospital, Dublin; and various other hospitals in Canada, the U. S. A., London, Glasgow, and the Continent.

From personal conversation with the staffs of the Toronto General Hospital and the Montreal Maternity, and others, as well as the results of my own clinic in the Toronto Western Hospital, I feel it to be the consensus of opinion that eclampsia hardly ever develops among the clinic patients who come early and faithfully to these prenatal clinics. And the methods we use are so simple and easy that any practitioner can duplicate them.

The girls of our country should be taught in the senior grades of all schools the fundamental facts of health laws which govern their own bodies. The State that fails to impart such vital knowledge has failed to give instruction necessary for the preservation of life itself.

THE CAUSATION OF ECLAMPSIA.

The essential and constant factor in the causation of eclampsia is the pregnancy itself. Aside from this, in view of the existing confusion of theories concerning this disease, I can give you no exact and final word as to its etiology, but there are several observations which are not generally known, which nevertheless seem to have some bearing on this subject.

1. As the food supply progressively diminished during the war, and the carbohydrate consumption was relatively increased, owing to the scarcity and high cost of animal fats, especially butter and margarine, as well as meats, the frequency of eclampsia was both actually and relatively decreased. In the last two years of the war, when food here in Canada was so expensive, and scarce also, I saw only about half as many cases of eclampsia as in the preceding two years. This observation was noted to a striking extent in Norway and Germany during the same period, starvation being very close. From these observations it would seem reasonable to conclude that at least one important factor in the causation of eclampsia is a disturbance of metabolism concerned with food. Although I had grasped this idea independently, and, on empiric grounds largely,

had treated my patients, showing the toxæmias of pregnancy, with a high carbohydrate diet, for the last five or more years, yet it was not until Duncan and Harding, of Montreal, brought out their work on pernicious vomiting in pregnancy, and its relation to the disturbance of balance between fat and carbohydrate metabolism that I had sufficient scientific basis for my own beliefs, aside from results. On the other hand, I was well aware of the fact that an exclusive protein diet will often cause a nephritis, and had used with success a liberal carbohydrate diet, free, for all practical purposes, from purins. The success that Duncan and Harding have had in treating the early toxæmias of pregnancy by a high carbohydrate diet, I have, to some extent, paralleled in the toxæmias of the last months of gestation, though here the problem is more complicated by such factors as pressure and infection. During these last two years women worked harder and thus were in better condition.

2. *Precipitating Factors in Eclampsia.* There are precipitating factors which, added to primary and pre-existing metabolic changes, especially in the liver and kidneys, cause a further and overwhelming breakdown of the organs involved, and so affect distant organs like the brain, that convulsions or coma, or both, result. Chief of these precipitating causes stands *infection.* I have made careful note in the last four years of the condition of the teeth and throat, and I have repeatedly demonstrated that oral sepsis was the visible and probable source of infection in nearly 75% of my eclamptic cases. This viewpoint is also shared by Mosher, of St. Louis, and Talbot, of Worchester, Mass. I believe that it is better to attempt the removal of foci of infection during the pregnancy, provided this can be undertaken without undue risk, as it usually can, considering that the danger to the mother and fetus is greater in many cases by the continuance of the poisoning than would result from careful and well considered operative treatment. Certainly the liver, kidneys and heart are far better able to stand the necessary strain possibly resulting from early treatment, because they are then more or less intact, than they would be forced to stand as a result of continued poisoning plus the metabolic changes due to the pregnancy itself. If infected teeth are removed during pregnancy I believe that the chance of absorption of toxins or bacteria from the raw areas may be greatly minimized if the cavity is at once swabbed out with, say, 5% Di-chloramine-T, in chlorcosane, and that not too extensive operating is done at one sitting.

On the other hand, I have often observed the fact, well known, that one attack of eclampsia seems to confer an immunity against subsequent attacks, and this in spite of the fact that obvious sources of infection have not been removed meantime. Talbot's theory, interesting, and for the major part I think correct, fails to explain this phenomenon.

Again, it is surprising how some women with very obvious septic foci seem unaffected by them during pregnancy. This would seem to indicate that the body had acquired a certain immunity against these organisms, or that the great filters, the liver and kidneys, had had such a splendid reserve force that they were

able to deal with these bacteria and their toxins. If, however, the general resistance is broken down by some strong infection, such as influenza, then these foci of infection can and do overwhelm the organs of elimination whose reserve is gone. Thus I have seen eclampsia develop in multiparæ who had passed several pregnancies safely. In several, influenza seemed to be the factor to break down the resistance which had hitherto been effective against septic foci.

Prophylactic innoculations against the common respiratory complications of influenza I have employed in my pregnancy cases with apparently very good success when compared with similar cases not so protected.

While at this part of the discussion of the influence of infections it might be of some interest to mention the fact that three cases of sterility of from three to five years' duration, after removal of badly diseased tonsils and teeth, and the administration of autogenous vaccines all became pregnant within two or three months after the removal of the septic foci. I believe a direct relationship existed between the infection and the sterility.

3. While considering the causes of eclampsia, I wish to offer a suggestion. It may only have been a coincidence, but I have known of eclampsia developing in successive wives of the same husband. Might this mean that he had passed on an infection, not venereal, to which the wives were particularly susceptible? Or might it be possible that the placental and fetal tissue and tissue fluids had dominant paternal characteristics just as distinctive as those which are visible, such as hair, eyes, features, etc., and that these placental products were antagonistic to the maternal tissues, that is, were of opposing blood groups or incompatible bloods? If this were so, and it is a reasonable hypothesis in my opinion, it would not be hard to conceive that the mother could become sensitized against the incompatible paternal constituents in the products of conception. Anaphylaxis or protein shock might thus be produced. I have considered this possibility for several years, and have hoped to have tested the blood of husband and wife to ascertain whether they belonged to the same or incompatible blood groups in those cases where eclampsia developed, but have lacked the opportunity. Others with greater facilities might attack this problem. If it were shown that the bloods of husband and wife were incompatible in eclampsia, this factor might then assume a very large role in the causation of the disease, and means might be found to desensitize the mother, possibly by small injections of the husband's blood. A definite prophylactic procedure might thus be evolved. I do not wish, however, to attach undue importance to any one single factor, for I believe that the problem is much too complicated to be disposed of by one or two factors.

CLASSES OF CASES.

In my own series about 90% were primiparæ, but large series show this proportion to be rather high when the whole country is considered. Post-partum convulsions only occurred three times, 5.6%. The majority of cases developed eclampsia at about full term. The fits started usually before labor commenced, but labor frequently followed shortly after, spontaneously, or else it was induced.

A small number of women developed convulsions in the middle third of pregnancy. I had one case develop as early as 3½ months.

Roughly grouped, the cases have fallen into two main types, the liver or kidney type, depending on which organ was the more affected.

Liver Type. This was characterized by jaundice, low blood pressure (the heart has not compensated owing to the intensity of the toxæmia), abdominal or epigastric pain, vomiting and coma. Convulsions may or may not be present. These cases are rather more dangerous than the kidney type, and respond to treatment poorly.

Kidney Type. This is characterized by headaches, flashes before the eyes, epigastric pain, edema, high blood pressure, albumen and casts in the urine, severe convulsions. This type responds as a rule quite well to the following treatment.

Mixed Type. This has symptoms and signs common to both the above, and in addition may have other organs, such as the brain or heart, specially damaged.

PREVENTIVE TREATMENT.

This should be the main direction of our attack on the whole eclampsia problem. Women should not reach the stage of convulsions or coma if the doctor does honest modern work and the patient co-operates faithfully with him. This means supervision throughout pregnancy. When a toxæmia of pregnancy is detected, prompt measures should be undertaken to reduce the strain on the organs of elimination, the liver and kidneys. I have spoken about the importance of removing septic foci. The bowels should be kept moving freely; magnesium sulphate is one of the best salts. At least one quart of water should be taken per day, and the total fluid intake and output carefully measured. If edema is present in the hands and face, that is, a toxic edema, table salt should be restricted. A purin scant diet I consider very important in the pre-eclamptic toxæmias, as also in those recovering from eclampsia. Fresh fruits, such as lemons, oranges and grape fruit, are valuable, as the citric acid they contain helps reduce the viscosity of the blood, which is high in many of these cases. In the slighter cases, a liberal purin scant diet may be given with advantage. Fresh air and deep breathing are valuable. Moderate exercise in the fresh air is excellent. Chilling and wet feet should be avoided. A sudden change to cold weather, unless carefully guarded against, may precipitate an attack of eclampsia. Moderately hot baths relieve the kidneys of the strain of getting rid of the ordinary waste salts. The woman should get into a warm bed for an hour or so following a hot bath, when it is taken at other than bedtime. Much rest in bed with plenty of coverings to maintain the skin at the sweating point, and lots of fresh air is valuable, especially so if the above measures are not sufficient. Daily examinations of the blood pressure and urine, including the 24-hour output, should be made. **If the condition does not improve the woman should be placed in a hospital under observation and treatment,** if at all possible. If she is far

from readily available help, and unless home conditions are very good, she should be sent to a good maternity hospital if she is not in immediate danger. If the blood pressure is steadily rising and goes above 150 mm. of mercury, and if the albumen in the urine is increasing, or if there is no albumen, but the specific gravity of the urine is low, that is, under 1010, the woman is headed for convulsions and a one to four chance of death. When this stage has been reached, that is, purgation, forced fluids, a milk diet, rest in bed, hot baths, an interstitial of saline, or saline glucose, etc., have failed to prevent the progress of the disease, *the time for action has arrived.* That *action* means the termination of the pregnancy. Do not wait for convulsions or coma. If the child is viable, even in the seventh month, it stands a better chance now, in spite of its prematurity, than to wait, if possible, two weeks more, for, though it is older, if happily it does reach two weeks' greater development, yet it is so much more toxic that its chances are much reduced. **Labor should be induced in a manner that will cause the least damage to the mother.** It should be preceded or coincident with an interstitial of glucose saline as hereinafter described.

The kind of anæsthetic used is of great importance. Do not use chloroform. In the majority of cases no anæsthetic is needed, but should it be required, the order of their value I should consider: nitrous oxide oxygen, Cotton's ether, ether, bromides, chloral, morphia. One of these may be used to insert the Voorhees' bag, which is the safest and surest method of inducing labor, and dilating the cervix at the same time. This is an important point, for it does not necessarily follow that any of the recognized methods of inducing labor result in labor, but if the cervix is dilated, as it can be by hydrostatic bags, the uterus may then be emptied, whether expulsive pains have occurred or not. It is in this respect very much more efficient than the bougie method, as well as less dangerous.

To the man in the country, generally without help, if there is time, packing the cervix and vagina with ¼ of 1% iodine in glycerine on sterile gauze, and leaving over night till sufficient softening and beginning dilatation of the cervix has taken place, will generally prove satisfactory, and will save anæsthesia. The cervix will then be in a fit condition to insert a bag, and not infrequently be soft enough to manually dilate should this become necessary.

However, it is unfortunately generally the case that the woman is not seen until convulsions have already occurred, owing to carelessness on the part of the doctor, or the woman herself. We must then do everything we can to save as much as possible of the wreck as we find it. Nearly all my cases have been of this nature. The woman arrives at the hospital, convulsions having occurred, and the doctor, if any were in attendance, has very properly sent her in where her chances and those of the baby were the best. Be it to their credit, many outside medical men are only called when convulsions have started, and they have done the wisest thing in sending her into a good maternity. Occasionally a woman is sent in with pre-eclamptic toxæmia. We can then apply preventive treatment with reasonable hope of success.

THE TREATMENT OF ECLAMPSIA.

Convulsions have occurred. What shall we do? That all depends on circumstances. The vital factors which must be quickly considered are these: Is the fetus alive? Is it viable? Is labor in progress? Is the woman a primiparæ? Is the birth canal normal? Is the cervix dilated or dilatable? Is the doctor one skilled in obstetrical surgery? Is a skilled specialist available? Are hospital facilities obtainable?

I shall try to show you what can be done in a good hospital, and I shall give you my own procedures, considering the above questions in some detail.

ANTEPARTUM CONVULSIONS.

Before Viability.

Here only the life of the mother should be considered, since the fetus is either already dead or dying, or will almost surely die if the disease progresses.

1. *Give half a grain of morphia by hypo.* Try thus to control convulsions, and if possible prevent them. Get the patient into a hospital if at all possible without undue risk. Prevent the woman doing herself injury by gently restraining her, and placing some clean soft object between her teeth to prevent her biting her tongue. A clean handkerchief rolled up; any readily available clean object which placed between the teeth will prevent them closing, and which will not break the teeth themselves, will serve. If the woman froths at the mouth, turn the head down over the side of the bed so as to minimize the chances of her aspirating the froth and mucus with the accompanying danger of an aspiration pneumonia.

Do not give chloroform to control the convulsions, as this anæsthetic causes damage to the liver and kidneys similar to that done by the eclampsia itself.

2. *Fresh Air and Oxygen.* Give plenty of fresh air, and oxygen if available. Give sufficient oxygen to clear up the cyanosis. Keep the patient warm.

3. *Interstitial Injections.* Give an interstitial (subcutaneous) injection of sterile physiological saline, from 500 to 1,000 c.c., under the breasts, and making sure that this simple procedure is done in an aseptic manner. I mention the sterile saline first, as it is nearly always available and is good treatment. What is distinctly better is a method which I believe I was the first to employ in the following proportions, and for the special treatment of eclampsia, adapting to this disease a procedure advocated some years ago by Thompson Walker for the relief of the acute anuria occurring in nephritis. It is the interstitial injection of a sterile 20% to 25% glucose solution in saline or water, depending on certain factors to be mentioned later. Two hundred and fifty grams of pure glucose should be boiled for ten minutes with normal saline solution, 1,000 c.c., and cooled to blood heat, and injected under the breasts with aseptic precautions. This solution is the most powerful safe stimulant of the kidneys we have, and it also supplies immediately available food to a strained, toxic and starved heart, as well as protecting the liver, which is temporarily disabled, and in addition is a very strong safeguard against sepsis. It causes a marked leucocytosis. In com-

mon with simple saline it also dilutes the toxins circulating in the system, and renders the blood less liable to abnormal clotting. An interstitial should be given in preference to an intravenous injection, as the technic of interstitial injection is easier to perform and less dangerous, for it is frequently hard to find suitable veins in women, the heart can readily be embarrassed by a sudden increase in the blood volume, and worst of all, and a very real danger, should a convulsion start when the needle is in the vein, much damage might result from wounding the artery or nerve. On the other hand, the glucose solution is absorbed in a similar way to the saline, and enters the circulation gradually and does not embarrass the heart. It reduces the blood pressure if it is abnormally high, and raises it if it is very low.

4. *Venesection or venipuncture is good in full-blooded women.* It removes a certain amount of circulating toxin, and reduces the blood pressure. It is not a good thing, however, in low blood pressures, and must be used with judgment, for the woman still has to lose an unknown amount of blood at delivery. Usually 10 to 20 ounces (300 c.c. to 600 c.c.) may be withdrawn with great advantage. The larger amount is naturally for big women. It is better, as a rule, to wait until the interstitial has been given and absorbed before taking the blood, as it is then less likely to clot. I have attempted to remove blood from the arms of eclamptic women, and not only did I fail to obtain more than a few drops of black, tarry blood, but have had the whole antecubital fossa thrombose. Later, when the blood was diluted by saline or glucose solution, the blood ran easily.

5. *Empty the uterus under aseptic conditions with a minimum of shock and trauma.*

First method, hydrostatic dilatation, using Voorhees' bags, or this procedure, followed by manual dilatation and delivery.

If the cervix is not soft enough to be dilated easily under an anæsthetic to a size sufficient to deliver the fetus at one sitting, then it may be digitally or instrumently dilated to the size of the index finger, and then insert the largest sized Voorhees' bag which will go in, usually No. 3; fill this bag with sterile water or weak antiseptic solution, tie and apply traction of two or three pounds. It is frequently possible to do this without any further sedative than the morphia, but if an anæsthetic is necessary, then nitrous oxide-oxygen, or ether-oxygen, is the best to use.

When the bag comes out, as it does in a few hours as a rule, the cervix may then be open enough for delivery, but should further dilation be necessary, it may then be possible to finish dilatation manually without lacerating the cervix. Sometimes, however, the cervix cannot be manually dilated without danger of tearing, and then we have to consider the case. If the woman is doing well, having good labor pains, and it is felt that in a few hours she will deliver herself, it is best to give nature a chance. Occasionally the pains stop as soon as the first bag comes out. Another larger bag may then be inserted under aseptic precautions, traction applied, and the case watched. If the woman is doing well she

may deliver herself. When the bag comes out, if the pains subside, the fetus may then be extracted by forceps, or version and breech extraction, as may seem best in the individual case. Should the fetus be dead, perforation may be done and thus save valuable time and unnecessary dilatation. Just here I might mention that it would be well to give ¼ grain of morphia within some two hours of the first injection should the woman show further signs of approaching convulsions.

Second method: Vaginal Cæsarean Section, or vaginal hysterotomy. Occasionally the cervix will be found long and rigid, cartilaginous in fact. Here there is slight hope of the less radical methods accomplishing a satisfactory dilatation in a safe time. Again, the cervix may admit No. 1, or rarely No. 2, bag, and after several hours' traction no sufficient further enlargement of the cervix has occurred, or the condition of the woman may become worse and demand speedy evacuation of the uterus.

When any of these conditions is present the best way to empty the uterus is a vaginal Cæsarean section. This operation properly done is rapid, has very little shock, does very slight damage, and in competent hands is very satisfactory. It may be used to advantage up to the eighth month, provided no serious pelvic contraction exists. After that time, abdominal Cæsarean section is preferable, and in my own hands is very much faster.

I have modified the classical vaginal Cæsarean section, making it much simpler. The modification was original with me, and I have employed it with very satisfactory results some seven times. Lately, however, in speaking with Prof. B. P. Watson, I found that he employed a somewhat similar technic.

Vaginal Cæsarean section as I do it is as follows: The operating field is made as sterile as possible after the patient is under the anæsthetic. Sterile drapes are placed, and the perineum retracted with a weighted speculum (Auvard's). The bladder is catheterized, and the cervix drawn down as far as necessary, or as is possible without injury. Tenacula are placed on the anterior lip, and the cervix split upwards in the midline to within a half an inch of the bladder, or to the horizontal part of the inverted ⊥ of the older operation. This produces cut surfaces like two triangles, with the apices toward the operator and the bases joined. The sterile gloved finger is placed in the center of the base of the cut and gently insinuated, causing a separation between the two layers of the cervix. The base of the cervix is thus divided into the upper and anterior vaginal layer, which is continued up to the bladder and a lower posterior layer of the cervix which merges into the lower uterine segment. The bladder is rolled and stripped away from the cervix to both sides, as well as upwards. I usually place sterile gauze around the index finger in doing this. An anterior retractor is then inserted, and the vaginal layer of the cervix and the bladder are retracted and protected. The cervix is then cut upwards with scissors until enough room is gained to allow the fetus to be extracted. If the fetus is small this anterior vaginal hysterotomy is sufficient, but if the child should be viable, one cannot usually cut

high enough to give room and at the same time keep the incision within controllable distance. Should this be the case, the posterior lip of the cervix may be dealt with in a similar manner, taking care to avoid injuring the rectum. The membranes are then ruptured if this has not been done or occurred spontaneously. The fetus is then extracted with forceps or by the breech, according to the indications present. The afterbirth is removed, and care should be taken lest the uterus be pushed inside out. I then close the lower uterine segment and cervix by a running suture of chromic catgut, No. 2, and the vaginal layer by a running suture of chromic catgut, No. 1. At the top, and again half way down the cut, I take a deep bite into the cervix, as this unites the two layers and prevents a hematoma. If the posterior hysterotomy has been done it is well to repair the posterior incision first.

The sooner the woman can be delivered after the first convulsion, the more likely will she recover, and further convulsions be prevented, while if the fetus is viable, the quicker it is got out without injury, the better its chances which are not good.

To the country doctor, unable to get his patient to a hospital, and with inadequate help, I would advise the morphia to be given in large doses; give an interstitial, using sterile saline, if glucose is not available; later bleed the patient if the blood pressure is high and she has lots of blood. Then under proper antiseptic and aseptic precautions, puncture the membranes, pack the cervix and vagina with sterile gauze, soaked with glycerine and a weak antiseptic. Watch the case, and if labor does not ensue shortly, when the cervix is well softened, it may be carefully dilated, and take sufficient time at this stage to avoid lacerations (often from half an hour to an hour should be spent). While waiting for the cervix to soften, hot packs, to the loins especially, and if the skin is hot and dry and the blood pressure high a general hot pack may do considerable good. Hot packs should not, as a rule, be given to women with low blood pressures, as the pack soon causes exhaustion. If for some good reason the cervix is not packed, the colon may be flushed often with hot water, and here the temperature should not be above 115 Fahr. Two ounces of mag. sulph. may be given by mouth if the patient can swallow, or may be given by a stomach tube. The stomach may be washed out, but the good to be derived from this procedure is very slight and should not replace the other measures suggested. Some men lay great stress on stomach washing, but I believe it serves to excite and disturb the woman. To the man who must do something it is much safer than *tinkering* with the genital canal. Often, indeed, the stomach has been almost empty for days. The liver and kidneys have been failing, the blood pressure frequently changed, edema present, yet let a convulsion occur, according to some, the stomach must be washed out at all costs, the last meal taken has suddenly acquired mysterious and poisonous properties and must be got out. Purgation does good, used with common sense. The eclampsia poison, or poisons, however, are probably colloid in nature, and very unlikely to be purged or sweated out of the system. Let us

understand just what value certain measures possess. Purgation in moderation relieves the kidneys from the strain of eliminating much of the waste products which might otherwise be absorbed. It can do considerable good, but pushed to an extreme exhausts the patient. Sweating does some good by removing many waste salts, and a hot pack if the skin is hot and dry may dilate the superficial vessels, and especially hot packs over the kidneys may reflexly relax the spasm of the renal vessels. Blood pressure is thus often temporarily lowered. But if at the same time water is not got into the system, then the various body fluids are concentrated, and the toxins producing the convulsions are intensified, and more harm than good is the result. Remember always to replace the water lost through skin and bowels. The cervix having then been carefully dilated, and I lay stress on this point, for accouchement force it is not only deplorable in its results in many cases, but unnecessary, the fetus should be delivered. Since eclamptic women are more liable to become septic, owing to a lowered resistance, and much interference, the giving of the glucose has particular value in combating this lowered resistance. After interference has occurred, about 40 grains of hexamine are dissolved in about a quart of water, or lemonade, and given in the next 24 hours. This has seemed to me to have had a favorable effect. Especially in the country a fight for lots of fresh air may have to be made. As a rule the hard-working farmer's wife has better resistance than her city sister, and with equally good treatment should recover faster.

After Viability—Baby Living.

1. *Cervix Easily Dilatable.* Similar methods to those advised above should be employed, with, however, this exception, *give little morphia* until the baby is delivered, otherwise if the baby is under the influence of morphia it may be impossible to resuscitate it. In these cases the patient may be put under gas and oxygen anæsthesia with ether sequence, as this adds greatly to the relaxation of the cervix; ether oxygen is also very good. The interstitial may be given while dilating the cervix. Push the oxygen. Remember the baby is toxic and can ill withstand rough handling. Take great care, therefore, when delivering to use gentle traction, allowing a rest from compression every minute and giving oxygen freely to the mother, or if a breech extraction is to be done, flood the mother with oxygen just before delivering the thorax and head, using the methods I described in the Journal of the Canadian Medical Association, May, 1917. The fetus is then much better able to withstand necessary and unavoidable birth head compression than otherwise. Let the woman bleed a moderate amount if she has it to spare.

2. *Cervix not easily dilatable—Baby in good condition—Case not urgent.* Give morphia, an interstitial, insert largest possible Voorhees' bag, tie and apply traction. If the blood pressure is not very high, that is, under 160 mm. of Hg., small doses of pituitary extract may be cautiously given if pains are not set up by the bags. In a few hours we have reached the stage of an easily dilatable cervix.

We may then proceed as under the above heading, Cervix Easily Dilatable, if haste is necessary; but if the case is doing well, labor proceeding satisfactorily, we may leave matters to nature, being ready to assist her if necessary. Blood pressure readings should be frequent, and supervision constant. Listen to the fetal heart sounds frequently.

3. Cervix rigid and not likely to dilate quickly with bags or manually.

a. Fetus not beyond the eighth month and relatively small compared to the birth canal. Here vaginal Cæsarean section, as described above, performed by a good surgeon, under good conditions, is perhaps the best method. Morphia should be withheld until the baby is extracted. The interstitial should be given. Bleeding is usually free here, and is generally an advantage.

b. Fetus in the 9th month and relatively large, or a contracted pelvis, or a complete placenta prævia, or huge edema of the vulva, is complicating the eclampsia.

Here an abdominal Cæsarean section gives both patients the best chance, if it is well done. Give oxygen. Morphia should be withheld until the baby is removed. The interstitial should be given while the operating room and surgical team is getting ready. Speed with safety can be attained in this operation. I have performed several complete abdominal Cæsarean sections and had a dressing applied in less than fifteen minutes.

If an obstetrical specialist is available, one capable of giving the woman and baby every possible chance, it is just as much the patient's right to have the best skill available, especially, since in the hands of the profession as a whole, the mortality is so terrific in eclampsia, as it is a patient's right to have a skilled surgeon for an acute appendicitis. In the latter case, the modern general practitioner realizes his own limitations and the public also realize them. They know he lacks the skill and experience to do as well on the average as a skilled surgeon can do, and yet the general practitioner too often thinks if it be an obstetrical case he is quite competent to handle it. The time must soon come, however, when the public will wake up to the fact that the deaths due to childbirth are not only the second largest cause of death in the childbearing period, but are for the most part preventable when the best skill available in obstetrics is given. But I would not for a moment disparage the really excellent work done by many country doctors working under heavy handicaps, doing the best they can under adverse conditions, but God speed the day when pregnant women will have the favorable conditions and skill which will ensure them and their babies a safe birth. Those favorable conditions and that adequate skill can be obtained. What I do condemn, however, is the careless, ignorant and dirty work done by general practitioners, with hospitals and skilled help all around them.

While my methods are, in my opinion, the best, and have in my hands given results second to none anywhere, yet slower methods have given fairly good results on the whole, and perhaps as good as could be hoped for when the doctor works under conditions less than the best.

Those methods which may be applied in the country, are, morphia, interstitials of saline or glucose, venesection where indicated, puncturing the membranes, fresh air, moderate purgation, hot packs when high blood pressure is present, aseptic packing of the cervix, or dilatation by hydrostatic bags, manual dilatation, and extraction by forceps or breech. Ether can be given in the country, and should be used in preference to chloroform if possible. *Lumbar puncture* has been favorably spoken of, and I should use it if convulsions persisted after the other methods I have outlined.

Should the child be dead or dying, the slower methods are to be preferred as a rule. Should the mother need hurried emptying of the uterus after the death of the child, perforation may well be done should the cervix be too small to extract the child at once. Great care is necessary to avoid lacerating the vagina with the sharp edges of the perforated skull. Here the Copeland solid bladed forceps, or to a less extent, the Tucker-McLean solid bladed forceps, will aid materially in protecting the maternal soft parts.

While the emptying of the uterus is the best single factor in treating eclampsia, it is not in itself invariably curative. Nor when the woman is delivered is the danger over, for there remains the damage done to the liver, kidneys and other organs, and she is not out of danger for several weeks.

POST PARTUM CONVULSIONS

These should be treated according to the general treatment outlined above. Morphia in large doses, an interstitial of saline or glucose; blood may be removed if that lost during labor is small, and plethora still exists. If the convulsions continue, lumbar puncture may be performed. Oxygen should be given if available, and fresh air in any case. If the blood pressure is high, and the skin dry, a hot pack may do good, but should not be given unless water is got into the tissues, to replace the loss through the skin. If the pulse is weak, however, do not give a complete hot pack, but just hot stupes to the loins. Hot colonic flushes may be given.

After Treatment. For several days following the convulsions, an ounce of Mag. Sulph. in the morning should be given unless the blood pressure is very low. In this event, I think hot colonic flushings are better. The food should consist for several days mainly of milk, and glucose lemonade (one ounce of glucose, the juice of a whole lemon in a large glass of water) should be given several times a day. No harm will come in most cases from the early careful carbohydrate diet. If the patient can be constantly watched, for there is danger of a toxic insanity for a time, she should be placed out in the fresh air in the sun, well wrapped and kept warm, and much good will result. I think a good iron tonic is very valuable.

The baby should not be placed at the breast for several days after the last convulsion; the breasts should be pumped, however, every eight hours. The reason for this is that the mother might develop a toxic insanity, and injure the baby, or her milk might prove toxic.

The baby may be placed on a 2 in 20 milk mixture, or one part of whole milk to three parts of water, and dextro-maltose, or milk sugar, added. Breast milk from a healthy woman is preferable.

Results. The final test of any system of treatment rests mainly on the results obtained. I say mainly, because I do think that a certain element of luck comes into play. By that I mean that one man may have a large series of eclamptic women sent into the hospital in a dying condition, and in such a case his results will be unavoidably higher than another man's, who has had a more favorable series of cases to deal with, yet both may use the same methods of treatment. It is only by comparing a large series of cases, such as I am presenting to you, that we can get a fair estimate of the value of a method or system of treatment. Having seen over 200 cases of eclampsia in various stages of the disease in many hospitals, and watching the types of cases, the various methods used in treating these women, and finally comparing my results with those of other men over the same period, in the same city, I can say that I had just as serious cases as they had. No matter what the treatment, if one has a large enough number of cases some deaths will occur. In the paper on the treatment of eclampsia which I read before the Ontario Medical Association at Peterborough in 1915, and published in the Canadian Journal of Medicine and Surgery, September, 1915, I was able to present eight consecutive cases with no maternal deaths. Yet in spite of deaths occurring in the present series, I consider my present treatment better than at that time.

It might be interesting to show what results were obtained in one of the best maternity hospitals, the Sloane. Cragin and Hull's article, published in the Journal of the A. M. A., January 7th, 1911, shows that in a series of 20,000 deliveries there were 251 cases of eclampsia with 71 maternal deaths, or a mortality of 28 per cent. Among the last 50 cases of eclampsia treated with chloroform there were 15 deaths, or 30 per cent. mortality. Since the introduction of ether, and the elimination of chloroform in all cases of toxæmia and eclampsia, there were 6,863 deliveries with 50 cases of eclampsia and only six women died, a mortality of 12 per cent. Where chloroform was used, 50 cases occurred in 5,164 deliveries; whether ether was used, 50 cases occurred in 6,863 deliveries. Surely these results should convince. Chloroform is probably, therefore, about 25 per cent. more toxic than ether according to these figures.

Personal Results. Maternal mortality 3.7 per cent. I have had in the last five plus years, some 53 cases of eclampsia. Of these, 46 actually had convulsions. In the remaining seven cases, convulsions threatened within at most a few hours and were only averted by prompt efficient treatment. These seven cases were all serious and not in the same condition as another large series of pre-eclamptic toxæmias not here recorded. For example, one of these seven women had had severe headaches for some time, edema, high blood pressure, and a rapidly increasing albuminuria, epigastric pains, spots before the eyes.

On the way to see her in consultation with her physician, who had been trying elimination and purgation and sweating, he related the above conditions and I advised removing her at once to the hospital and emptying the uterus on the strength of these signs and symptoms alone. On examining the lady, she went totally blind before our eyes. I at once gave her half a grain of morphia hypodermically and took her at once to the hospital and introduced a Voorhees' bag, and shortly afterward delivered her under gas and oxygen. Both mother and baby did well. The blindness cleared in two days. Had I delayed until convulsions occurred, as they would have done without doubt, in a matter of minutes very probably, both patients might have been lost. I am now convinced, in spite of previous opinions, that the convulsions are dangerous and do much damage.

Some of you may think my methods are radical, that I am a surgeon and therefore like operating; why not leave things to kindly nature, who only kills about 25 per cent. of the women? My justification is a total of three women lost, a gross mortality of 5.6 per cent. As one of these women had a chronic nephritis preceding her second attack of eclampsia, and was slowly recovering apparently, from a hemiplegia and the effects of the second attack, and had been discharged so far as the eclampsia was concerned, but had died suddenly a month later apparently of a hæmorrhage into the brain, this case might fairly be attributed to the chronic nephritis and high blood pressure rather than to the eclampsia directly, though undoubtedly the eclampsia had a profound effect. This gives a corrected maternal mortality of 3.7 per cent. in the 53 cases of eclampsia. The fetal mortality, I regret to say, I was unable to reduce below 50 per cent., because, in many cases, the babies were already dead within the mother when I first saw the case, or because of prematurity and toxæmia. Only two of the cases which had convulsions were seen before the fits had already occurred. One of these wilfully prevented me rendering effective treatment when I wished, therefore, I do not hold myself responsible for inferior results; the other woman was recognized to be threatened with convulsions when first seen, but although she was given immediate treatment, a convulsion occurred before the treatment was effective.

Brief details of women who died might be of interest:

I performed Abdominal Cæsarean section once. The woman, a young primaparæ, was at full term. She was seen for the first time in consultation, having had twelve counted convulsions, and an unknown number previous to being found in coma on the kitchen floor by her husband when he returned home at noon. Her blood pressure was 190 mm. of Hg. systolic. A catheter withdrew only about two ounces of dark urine which was loaded with blood casts and went solid on boiling. Edema was only present in the conjunctivæ, which were moderately jaundiced also. Morphia and hot packs had been given without benefit, by her physician. She was not in labor and the soft parts were undilated. There was a titanic spasm of the uterus, but the fetal heart tones were strong. I told the husband and the attending doctor that the woman had very little hope of recovery, and that the only chance for the baby and the best for the mother was an immediate abdominal Cæsarean section, which I did under gas and oxygen. I saved the baby, and she is alive to-day, I believe.

On opening the abdomen, the peritoneum bulged out before incising, and as soon as opened, a large quantity of turbid fluid gushed out; a spontaneous peritonitis was present. The woman apparently recovered from the shock of the operation, which was slight, but she had several more convulsions. She was given an interstitial of glucose and in the first 24 hours after the operation had 40 ounces of urine removed by catheter. She remained in coma, and at the end of the first day she developed paralysis of the right side. The blood pressure was reduced considerably, but at the end of 30 hours she apparently had a cerebral hæmorrhage and died suddenly. Only a partial post-mortem was permitted. The peritonitis had progressed further and was general. The liver had degenerated so as to present no normal area to the eye. The abdominal and uterine wounds were in good condition. The areas of injection of the glucose interstitial under the breasts showed no gross injury. The kidneys were congested, but showed a large area of parenchyma. The kidneys had responded well to the interstitial. Happily I saved one life where two seemed doomed.

Vaginal Cæcarean section was done six times in this series, twice in one woman, who subsequently died of chronic nephritis. All mothers recovered from the vaginal Cæsarean section. There were only two viable living babies in these vaginal Cæsarean section cases; one born alive at seven months died in a few hours of eclampsia poisoning, the other survived. One viable child was dead when I operated. Had I been free to operate when I desired, I might have saved it. The mother in this case very narrowly escaped with her life. My anæsthetist expected her to die on the table. I stayed up with her all night. Indeed, much of my success I consider has been due to the fact that I have just devoted all my time and been present to personally give the patient the benefit of a wide experience. Many cases needed special drugs or treatment to meet special indications. I have given you general principles of treatment; special emergencies will have to be treated as they arise. Much of the most valuable assets we possess, our personal experience and judgment, unfortunately, we cannot pass on to others. Most of these cases of eclampsia have been charity patients, but I have tried to give to the poorest the best treatment possible. I have not mentioned the advisability of quiet and isolation, because most of my cases had to be treated in a noisy ward, no other place being available. I have not found the fits to have been precipitated by the noise, though I do think the woman does better if she can have quiet.

Another interesting case, Mrs. B———r, was that of a primiparæ seen for the first time at the beginning of the sixth month. Routine examination disclosed a systolic blood pressure of 200 mm. of Hg. In spite of this fact, she looked well, said she felt well, with the exception of headaches. Slight edema of the feet was present. The weather was very hot at the time and she was drinking water freely and the skin was active. The urine was normal. I attempted to tide her along until viability and keeping her under close observation. A purin scant diet was given, fluids forced, and she was mildly purged. She began to improve. The blood pressure fell, and the headaches left. Then the weather suddenly turned quite cold, and at once her urine became loaded with albumen and casts and the blood pressure rose. I wished her to allow me to induce labor at once, but she refused. I then did the next best thing, sent her to bed, placed her on a milk diet, forced fluids and purged her with Mag. Sulph. daily. However, she did not improve, and I threatened to withdraw from the case if she did not at once go to a hospital and allow me to induce labor. When she reached the

hospital she again refused to let me induce labor, and begged me to try still further medical treatment. I finally refused to have anything further to do with the case, and then she consented to allow me to do what I knew was best for her. I arranged for the operating room at 4 p.m. At 2 p.m. she had a convulsion, I was informed over the telephone. I ordered half a grain of morphia per hypo at once, and within an hour I dilated the cervix to the size of one finger and inserted a No. 1 Voohees' bag while she was under the gas and oxygen. I then applied traction. Several hours passed, another convulsion occurred, and the cervix was not softening nor dilating satisfactorily enough. I then had the woman given gas and oxygen, and did an anterior and posterior hysterotomy as I have described above under Vaginal Cæsarean section. The fetus was extracted with forceps and lived several hours, dying of eclamptic poisoning.

At the time of operating the blood pressure was 260 mm. of Hg. An interstitial of glucose saline was given. Several days after, the blood pressure suddenly rose again and I withdrew sixteen ounces of blood with very great benefit. She made a slow, partial recovery, but a chronic nephritis remained. This I treated for several months with some success, the urine finally showing just a trace of albumen and the blood pressure 160. I warned her against further pregnancies until I should tell her it was safe. She disappeared. More than a year after this, on entering my waiting room I found a woman in a heap on the floor. She was unconscious. Her face was flushed, she had a high tension pulse, there was some froth at the mouth. I did not recognize the woman, but placed her on a couch, loosened her clothes, and gave oxygen. She began to come around. I examined her purse, found a gas bill with her name on it, and it was this same woman on whom I had operated a year or so previously for eclampsia. I summoned her husband, who was a policeman, got an ambulance and rushed her to the hospital. I found from her husband that she was three and a half months pregnant. Under gas and oxygen, I performed an anterior vaginal hysterotomy (the second time on the same woman, a rare event for any surgeon). To my surprise, I had no difficulty as a result of the former operation. I emptied the uterus without any trouble, gave an interstitial. Her blood pressure was over 260 mm. of Hg. The urine was loaded with blood casts and free blood, and went solid on boiling. A stormy convalescence ensued. She was gradually improving, when at the end of a week she had a sudden paralysis of the right side develop. She was very much beclouded mentally. She had several syncopal attacks, became pulseless at the wrist. I had 20 minims of pure ether injected into the pericardium, and she rallied. One night *she was unconscious*, the pulse, which had been above 200 mm. of Hg., fell, and could not be detected at the wrist. I gave intravenously by hypo. 1/100 of a grain of Merck's Digitalin which I had brought from England with me several years previously. Within five minutes the pulse returned, and became full, regular and strong, and remained so. She gradually improved, though the nephritis was still very serious. After a month, I discharged her from the hospital ward, as it seemed that a slow recovery from the hemiplegia was before her. About five weeks after the operation, I had seen her at midnight, and she seemed improved, at 2 a.m., while talking to her nurse, who was giving her a glass of milk, she stopped in the middle of a sentence her eyes stared and dilated suddenly and she stopped breathing. I was telephoned to at once and suggested oxygen and artificial respiration, and a hypodermic of ether into the heart. Adrenalin was also given and camphor in oil. The heart responded well for about ten minutes, but she never breathed again. The heart then slowly gave out and she was dead before I could reach her. Evidently a hæmorrhage had suddenly occurred into the respiratory center. This case I give at some length because of the several interesting details. I do not feel that it should be included in my mortality results, as it was not a direct and immediate result of the eclampsia, but was probably due to the pre-existing and continu-

ing chronic nephritis and high blood pressure, though undoubtedly the eclamptic attack did have a profound effect.

The third and last woman to die, Mrs. M., No. 47 in this series, was brought into the hospital in coma, alternating with convulsions. She had recently had influenza. She was very edematous. She was a multipara and had had normal labors previously. She had acute edema of the lungs, and frothy mucous bubbled from her mouth. She was having strong labor pains. I gave her a quarter of a grain of morphia and lots of oxygen and bled her, as her blood pressure was 190 mm. of Hg. I prognosed her speedy death. She delivered herself in about three hours. She did not respond to any treatment. At the request of her family, I asked Professor B. P. Watson to see her with me, asking him to come quickly if he wished to see her alive He agreed with all my treatment, and confirmed my prognosis. She died within twenty minutes. This case was doomed from the time first seen.

A fatal outcome was thus prognosed, both cases being pronounced hopeless when first seen; both babies lived, however. A fatal issue was prognosed as very probable in the case of Mrs. B———r.

All of the women who had any chance were saved.

My treatment has become more simple as I have better understood the basic principles involved. I tend to interfere and use more radical methods than formerly; only, however, if they are indicated. The methods I have suggested are not the only good ones, but in my hands have given you the results mentioned. One should keep an open mind on this subject, and be willing to change, if the change is based on reason, and gives much better results. I have tried to visualize to myself the probable pathological conditions in each case, and treat each case on its own merits, rather than by a rigid system. The convulsion is, after all, only a terrible incident. The damage to the solid organs has been progressing a long time, and even after delivery and the disappearance of the convulsions, the woman is still in a dangerous condition and needs careful supervision.

Remember this finally, that the greatest good to the greatest number of women and babies will not be achieved by those of us who are specialists and rescue women from desperate conditions by brilliant work, but by the careful, consistent, and intelligent supervision and treatment of the women throughout the whole nation by the general practitioner, who should not only be a conscientious doctor to those already ill, but should be an active propagandist in his community in all measures leading to increased health, safety and happiness of the people. If this paper shall have helped some doctor save some poor woman and baby, it shall not have been in vain.

Every woman and baby deserves a safe birth.

SUMMARY OF TREATMENT

Let me again urge the great importance of prevention. Careful and frequent supervision, her progressive history and appearance as gestation advances, and the frequent investigation of the blood pressure and urine, will furnish reliable guides as to further treatment. If careful elimination of remov-

able foci of infection, and other sources of strain on the organs of elimination, a diet high in carbohydrates and low in purin bodies, adequate exercise, abundance of fresh air and deep breathing, free skin action encouraged by hot baths, followed by rest in a warm bed, sufficient rest, forced fluids and moderate purgation, especially with mag. sulph., and lastly by hypodermoclysis with saline glucose solution, if all these measures fail to arrest the further progress of the disease, then do not delay further, but terminate the pregnancy with a minimum of damage. Get the woman into a hospital if possible.

If convulsions or coma have occurred, or if they seem immediately impending.

1st. *Morphia* in large doses should be given, sufficient to control the convulsions. If the facilities available and skill of the surgeon warrant it, and only then, the patient should be placed under gas oxygen preferably, or ether oxygen at once and whatever operative procedures are advisable proceeded with, leaving the morphia until the child is delivered. If the child is dead or not viable, give the morphia.

2nd. *Fresh air*, and oxygen if available.

3rd. *Keep warm.*

4th. Prevent patient biting tongue, turn on side to prevent aspiration of frothy mucus and danger of inhalation pneumonia.

5th. *Interstitial injection* of 25 per cent. glucose in physiological saline, to be freshly sterilized by boiling ten minutes, and given under the breasts at blood heat under aseptic precautions. Give from 500 c.c. to 1,000 c.c. If glucose is not available, give simple saline in a similar manner. The glucose or saline may be repeated in 24 hours if advisable. Intravenous injections in eclampsia are dangerous.

6th. *Venesection.* If the blood pressure is high and the woman full blooded, the withdrawal of from 5 to 20 ounces of blood aseptically after the interstitial has been absorbed is often of marked benefit. It withdraws some circulating poison and reduces the blood pressure. It is inadvisable in low blood pressures or marked anæmia.

7th. *Hot packs.* These are of only slight value. They should only be used as temporary measures while other more valuable procedures are being prepared or are in progress. If the blood pressure is high and the skin not sweating, they do some good. They should not be used in low blood pressures, but may be replaced by hot stupes to the loins. The fluid lost through the skin should be replaced by interstitials, rectal drips, or by mouth.

8th. *Empty the uterus.* This is the most valuable of all the measures used. Methods and indications: Correct anæsthetic and asepsis and antisepsis to be used in all following; above measures to precede or accompany.

A. Fetus Not Viable, Condition Not Urgent.

(a) *Cervix dilatable.* Insert largest size Voorhees' bag, apply traction. When bag comes out, the uterus may then be emptied at once in some cases, or sufficient further dilatation may be done manually if cervix is soft. If not, insert another bag. Keep up the morphia.

(b) *Cervix not dilatable.* Pack with sterile glycerine with iodine, ¼ of 1%, on sterile gauze. Wait till cervix is soft, if patient's condition will justify delay.

B. Fetus Not Viable, But Condition Urgent.

(a) *Cervix dilatable.* Careful manual dilatation and extraction of uterine contents.

(b) *Cervix not dilatable.* Vaginal Cæsarean section. See above for details.

C. Fetus Viable and Living, Condition Not Urgent.

(a) *Cervix dilatable.* Rupture of membranes, hydrostatic dilatation of cervix, small doses of pituitary extract later, if labor does not result without it. Delivery may then occur spontaneously, or be assisted according to the conditions arising.

(b) *Cervix not dilatable, condition urgent.*

(1) *Before the ninth month,* no pelvic contraction present. Vaginal Cæsarean section, forceps or breech extraction.

(2) *Ninth month onwards,* or in presence of effective pelvic contraction, large edema of vulva, central placenta prævia, or obstructing object in available birth canal: Abdominal Cæsarean Section. No vaginal examinations. Oxygen freely, morphia after child is removed.

D. Fetus Viable, But Dead.

(a) *Cervix dilatable.* Hydrostatic dilatation, forceps or breech extraction, perforation occasionally advisable.

(b) *Cervix not dilatable.* If case is urgent, Abdominal Cæsarean section, otherwise packing, hydrostatic dilatation, forceps or breech extraction if labor is not efficient.

After Treatment.

Mag. sulph. may be given each morning for several days after delivery. Force the fluids; milk, buttermilk, lemonade, glucose lemonade, toast and jam may be given. If kidneys are not active, hot stupes to the loins, and hot colonic flushings. A good iron tonic does good. Lots of fresh air. Gradually increase diet to full purin scant diet. Go back to proteins slowly.

Veratrum veride, pilocarpine, crotan oil, are all poisons which do a very questionable amount of good and often harm. They are quite unnecessary. Acouchement force is bad, stomach washings do little if any good, and predispose to further convulsions. Lumbar puncture is a reasonable procedure. I would use it if the above measures failed to stop the convulsions.

RESULTS

In this series there were 53 consecutive cases of eclampsia. Forty-six of the women had convulsions. The seven who did not have convulsions were very seriously damaged and the onset of fits was a matter of a few minutes or hours at most. Two women died as a direct result of the eclampsia, a mortality of 3.7 per cent. These cases were hopeless from the time first seen, but both their babies were saved. Nearly all these women had had several convulsions when first seen, and in many the fetus was already dead. No woman died who had any chance when first seen.

The fetal mortality was approximately 50 per cent. Preventive treatment, obviously, could not have been applied. In this large series, not one woman went septic, great care in technic being thus abundantly rewarded.

During these five years, no private patient, nor those in my pre-natal clinic at the Western Hospital, developed eclampsia, with the two noted exceptions, though many cases of pre-eclamptic toxæmia occurred.

Purin Scant Diet.

Acute stage: Milk, buttermilk, milk custard, lemonade with large quantities of sugar, preferably glucose; oranges, grape fruit juice, ice cream.

Pre and post-eclamptic toxæmias: The above, plus milk soups made from vegetables, potatoes, celery, tomatoes, etc. No meat stock.

Bread and butter, toast, jams, marmalade, honey.

Eggs, milk and egg preparations.

Vegetables: Potatoes, spinach, cabbage, lettuce, sweet potatoes, etc.

Cereals: Macaroni, spaghetti, cornstarch preparations, tapioca, rice, sago.

Fruits: Oranges, lemons, grape fruit, and practically all the fresh fruits in season. One should also study the question of digestability; for example, hard pears and green plums are better not taken raw.

Desserts may be made from combinations of the above.

N.B.—The many case histories and charts presented when this paper was read are not shown here, space forbidding.

CURRENT MEDICAL LITERATURE

REMOVAL OF TONSILS AND ADENOIDS

Sir Charters J. Symonds, K.B.E., C.B.

British Medical Journal, No. 3070, Nov. 1, 1919.

There has in recent years appeared in medical literature so much regarding the new methods of operating for the removal of tonsils, that one is almost asked to believe any method which does not dissect the gland with its capsule is old-fashioned and bad surgery.

The object is to remove the lymphoid tissue, including its capsule, since anything short of this is considered to be an incomplete operation. That this does not necessarily mean abandoning the tonsillitome, forms the subject matter of this paper. The author very highly commends a paper which appeared in the B. M. J. of October 4th, 1919, by Bowen, in which the complete removal (enucleation) of the tonsil is performed with a tonsillitome.

Sir Charters asks if complete extirpation of the faucial tonsil is necessary, what amount of relief follows partial removal, and in what proportion has recurrent tonsillitis developed? He refers to a former investigation in which his results over a period of ten years were exceptionally good. His recurrences in children were about one per cent. On these grounds he considers that enucleation, having regard to the serious immediate results which occasionally occur, requires much to justify its general adoption. He further points out that the operation is widely practised and by many with limited opportunity of acquiring dexterity. In those cases where a small portion of the tonsil is left, Symons has for years been removing this with a sharp right-angled curette. In this way he removes the lymphoid tissue and crypts, but leaves the capsule, which all the most enthusiastic "tonsillectomists" admit is the ideal method if one could only secure it.

The author does not consider any anæsthetic as safe or satisfactory as ether given by Clover's inhaler. For longer operations he prefers ether given by the open method. He says that in all throat and mouth operations it is only safe to insert the mouth gag when some resistance to the opening of the mouth has returned.

The paper is valuable in that it gives the personal experience of a general surgeon of unusually wide experience and ability, and one whose opinion on mouth and throat surgery is universally respected.

A NEW TREATMENT FOR OZENA AND ATROPHIC RHINITIS.

Patients suffering from atrophy of the nasal mucous membrane, associated with foul pus and crust formation, have had little in the way of permanent benefit offered them. Persistent douching and the subsequent application of various pigments comprise the general run of treatment. As they become older the disease fortunately is greatly ameliorated; but time, not treatment, is the greatest factor. The finding of some sinus involvement, as was insisted upon by Grünwald, has not by any means been universally accomplished.

T. H. Bemaris and C. H. Hayton have reported in the Royal Society of Medicine Proceedings, Vol. XII, No. 9, Aug., 1919, a method of treatment based on an alteration in composition and reaction of the substrata on which the bacterial ferments are acting. The treatment, which consists in a copious application of glycerine or glucose, or both together, to the infected area of the nasal cavities, is directed primarily against the fœtor of the disease. This fœtor, it is assumed, is due to the destruction of protein bodies by bacterial tryptic ferments, resulting in the formation of various stinking end-products of protein digestion. This action is attributed to the bacillus of Perez, which can be isolated in most severe cases of ozena, and gives the characteristic fœtor in its cultures. Usually in addition to various other bacteria, the staphylococcus albus is found. The aim of the treatment is to exploit the activities of such normally found organism to the detriment of the obnoxious bacillus of Perez. Experiments show that when this bacillus is grown in broth, together with the staphylococcus, it readily maintains its position in the culture; but if glucose is present in the fluid medium, the carbohydrate is fermented by the cocci, with the production of acidity, and the bacillus of Perez is rapidly killed out. By altering the substrata in composition and reaction, we get an inhibition of those processes of fermentation which produce the fœtor. It is thus seen that this simple and effective method is based upon a study of the character of the flora of the nose.

The authors do not claim that there is restoration of long standing structural changes in the tissue, but Hayton has exhibited cases before the Laryngological Section of the Royal Society of Medicine, in which the distressing features of the complaint, fœtor, headaches and crusts, have been very markedly diminished. These cases were all of old standing and had for many years tried all the known remedies for the disease.

Douching the nose is not recommended for the following reasons: (1) It tends to spread the infection to other parts of the nose and throat, (2) it washes away the harmless flora and the normal protective secretions and exposes the mucous membrane to other infections and catarrhal conditions. The method of application is as follows: Crusts are as far as possible removed and the entire nasal mucous membrane is brushed with cotton wool applicators soaked in a mixture of pure glycerine with the addition of 25% liquid glucose. Several applications are made daily, at first by the surgeon and subsequently by the

patient himself. From time to time the flora of the nose is examined to note the cultural properties of the bacteria present and to determine whether or no they are the strain to ferment the media supplied. In some cases when a spray or irrigation is required, a mixture of the two substances has been used in a 10% aqueous solution.

The histories of ten cases, extending over a period of two years, is given. The fœtor of all the cases disappeared and the greenish crusts were replaced by mucoid secretions.

PERRY GOLDSMITH.

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Preliminary Announcement for Fortieth Annual Meeting

Toronto, May 25, 26, 27, 28, 1920

DR. GEORGE D. STEWART, Prof. of Surgery, [illegible] and Bellevue Hosp. Medical College, New York.	[illegible] Diseases of the Gall Bladder, Duodenum and Appendix
[illegible] Surgery, University of Illinois, Chicago.	Technique of the Transfusion of Whole Blood and its value in association with surgical procedures in the treatment of pernicious and other anæmias.
DR. EDWARD B. ARCHIBALD, Lecturer in Clinical Surgery, McGill University, Montreal.	Pancreatitis.
DR. JAMES MASSON, Mayo Clinic, Rochester, Minn.	Subject to be announced.
DR. EMERSON HODGINS, London, Ont.	Tumours of the Brain.
DR. WALLACE SCOTT, Toronto.	Fractures of the Skull (their Diagnosis and Treatment).
DR. JOHN R. PARRY, Hamilton.	Surgical Treatment of Empyema.
DR. S. M. HAY, Toronto.	Diagnosis of some Common Acute Abdominal Conditions.
DR. E. STANLEY RYERSON, Toronto.	Relation of Pathological Conditions of the Gall Bladder to Treatment.
DR. D. E. MUNDELL, Kingston.	Tendon Transplantation.
DR. W. H. HARRIS, Toronto.	Conditions simulating Gastric Ulcer.
DR. ROSCOE GRAHAM, Toronto.	Significance of Pain in the right Iliac Fossæ.
DR. ED. D. ROBERTSON, Toronto.	Treatment of Ununited Fractures.
DR. ROBERT MCCOMB, Toronto.	Perineal Prostatectomy.

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TO-DAY'S WORLD PROBLEM IN DISEASE PREVENTION

Acting upon the request of the Council of National Defence of the United States, Dr. John H. Stokes, Dermatologist and Syphilographer to the Mayo Clinic of Rochester, undertook to write a non-technical discussion of syphilis and gonorrhœa, which he has been pleased to publish in book form under the title "To-day's World Problem in Disease Prevention."

That Dr. Stokes was amply qualified to edit such a discussion, has been manifestly demonstrated by the clear, forceful and thorough manner in which the subject matter has been treated.

Realizing the value of this book to the medical profession, the Provincial Board of Health of Ontario made arrangements with the author for the supply of a limited number of copies for distribution to practitioners in the Province. It is to be hoped that this illuminating contribution on a most vital and national subject may be widely disseminated and read.

Herewith is appended the introductory chapter to the book from the pen of Dr. John W. S. McCullough, Chief Officer of Health for the Province of Ontario:

Previous to the War, the problem of the control of syphilis and gonorrhœa had received little attention in Canada. No part of Canada had any legislation bearing on this subject. Conditions in the army focussed public attention upon the question, and there was some discussion in the press as to whether or not the soldiers sent overseas were being sufficiently protected against the venereal evil. It soon became apparent that the measures of control adopted in the army were of greater value than those in effect among the civil population. Enlistments showed that there was more venereal disease in the civil population than in the army. In September, 1916, out of nearly 42,000 Canadian troops in Great Britain there were 960 venereal disease cases. During the month of September, 1918, of 110,000 Canadians in Great Britain there were but 750 cases, a

reduction in the admissions during this interval of 66%. The evidence of effective measures used in the army, the report of the Sydenham Royal Commission in England, and the efforts of an Honorary Advisory Committee in Military District No. 2 and of the Toronto Academy of Medicine influenced the Ontario Government to appoint a Royal Commission of Investigation in 1917. The result of the report of this Commission was that in the session of 1918 the Government passed the Venereal Diseases Prevention Act, the earliest legislation of the kind in Canada. In the summer of 1917 the Committee referred to, associated with the Provincial Board of Health of Ontario, had taken up with the Dominion Government the question of issuing a license to the Board to produce an arsphenamine product under the War Measures Act, in order to reduce to reasonable proportions the cost of this remedy. The medical profession of Canada is aware of the successful efforts of the Board in providing supplies of diphtheria antitoxin and other biological products used in the prevention and treatment of certain of the other communicable diseases and of the very low prices at which these are secured. It was hoped that a somewhat similar result might be attained in reference to the remedy used in syphilis. After a prolonged effort this license has been promised the Board and steps are being taken to produce an arsphenamine product at reasonable cost. With the assistance of the public health officers of the other provinces of Canada and of social workers interested in the question of venereal disease, pressure was brought by the Board to bear on the Dominion Government to give financial aid to the Provinces in the care of venereal cases, and at the recent session of Parliament the sum of $200,000 was voted for this purpose. This money is to be distributed to the Provinces in proportion to population on condition that an equal amount is voted by the several Provinces. Ontario has agreed to provide the requisite funds, and these added to our proportion of the Dominion grant will afford a considerable

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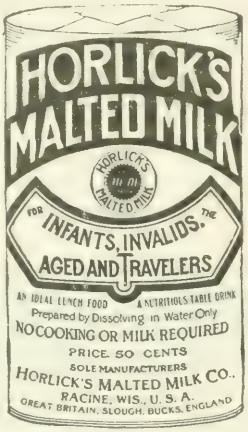

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sum with which to establish clinics for the care of venereal cases. Steps have already been taken by the Board to inaugurate this work. In addition, a strong National Council, similar to the one established in England, has been formed for the purpose of carrying on educational and other useful propaganda.

The Board is of the opinion that in the curtailment of the venereal evil a strong educational campaign is necessary, and in this connection the booklet here presented to the medical profession of Ontario seems a valuable one. This volume was written by Dr. John H. Stokes, Dermatologist and Syphilographer to the Mayo Clinic of Rochester, Minnesota, at the request of the Council of National Defence of the United States, during the late war. It has been published by the United States Public Health Service, and by them and the State Boards of Health of the various States has been distributed to physicians and to public spirited laymen. Dr. Stokes has consented to allow the publication of the volume in a limited edition by the Provincial Board of Health of Ontario. It will be distributed by the Board to the Members of the medical profession in Ontario. I desire to express the Board's cordial appreciation of Dr. Stokes' contribution to our educational campaign.

POST-INFLUENZAL DYSPEPSIA

According to G. Deusch (Med. Klinik, November 16th, 1919), the last epidemic of influenza at Rostock was followed by a number of cases of dyspepsia which lasted several months. None of the patients had suffered from any gastric trouble before their attach of influenza. The dyspepsia is attributed by Deusch to a hyperæsthesia of the mucous membranes of the stomach due to damage to the sensory nerve endings by the influenza toxin. Disturbances of the motor function of the stomach appeared to be fairly uncommon; on the other hand, most of the cases showed secretory disturbances. A diminution or complete absence of acidity was the principal finding, being probably due to a toxic involvement of the vagus.

THE DIFFICULTIES OF TREATMENT OF GONORRHŒA

The treatment of gonorrhœa bears the earmarks unfortunately familiar in more than one field of medical practice, in that many methods and a host of remedies mean doubtful ground. Nearly every expert in the management of the disease has his own peculiar way of going about it. General principles are recognized, to be sure, but they lack specificity, as we say. That is, no one or two remedies or methods can be certain of producing results in the overwhelming proportion of patients, as is the case, for example, in syphilis. No epoch-making achievements in the treatment of gonorrhœa seem to have been recorded in recent years, although on the whole there has been a persistent improvement in methods and results. The growing appreciation of the importance of the microscope in the control of treatment is a signal advance. At times it seems as if the rather sordid peculiarities of the disease, the difficulty of getting the patient's cooperation when it is so vital to a successful issue, the lack of the spectacular, the tendency to obstinacy and chronicity, and the brilliant triumphs in the related field of syphilis had, in an indefinite way, deflected interest from a field in which compensations are few and the labor often out of proportion to the rewards. Yet nothing is becoming more apparent than that intelligent treatment of a gonorrhœa is an essential to its cure, and should be adequately provided for in the interest of the public health alone, to say nothing of the patient himself. It rests with the future to devise means to bring home the importance of adequate care of gonorrhœa and a more pressing sense of responsibility in regard to it, first to the public, and then perhaps to the medical profession.—JOHN H. STOKES, in To-day's World Problem in Disease Prevention.

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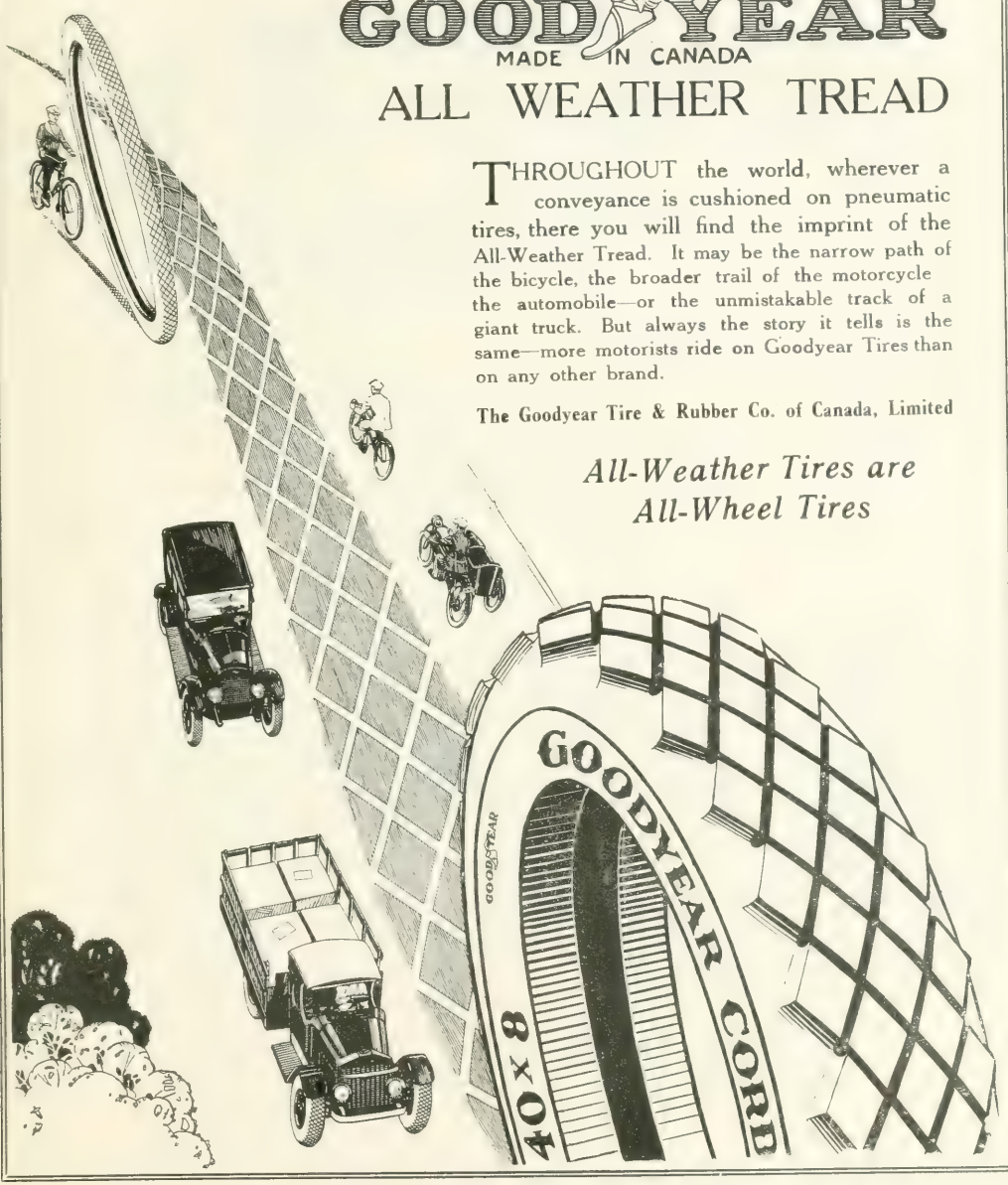

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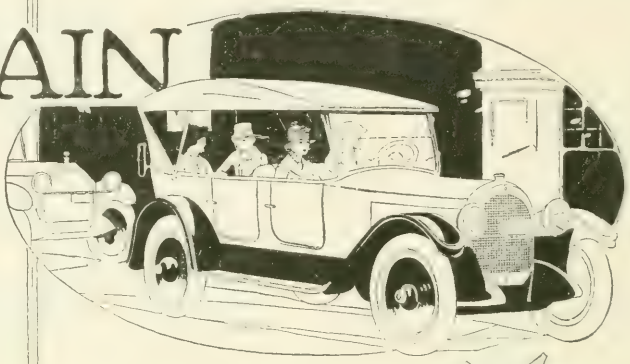

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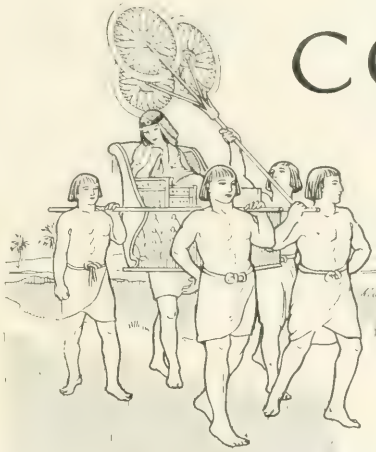

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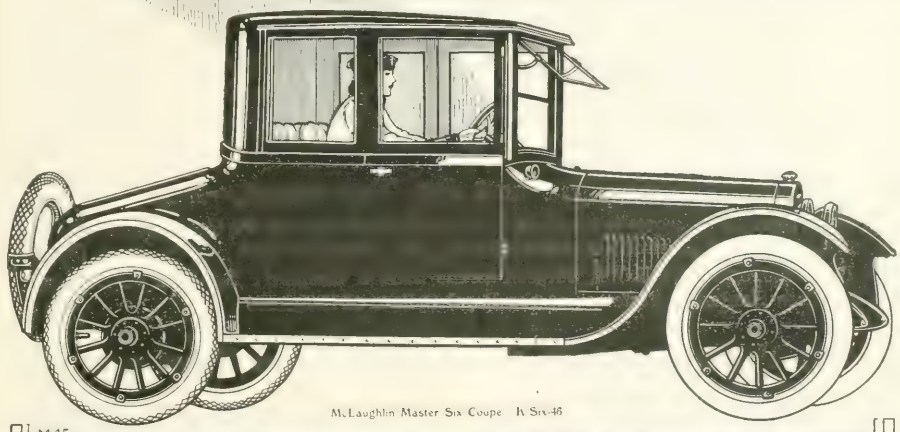

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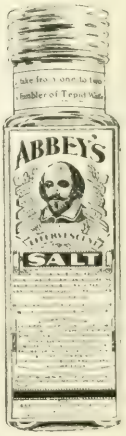

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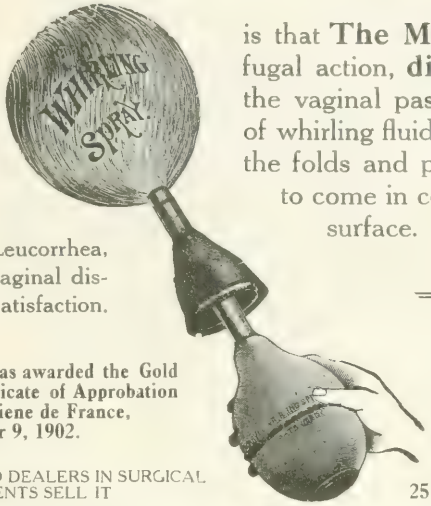

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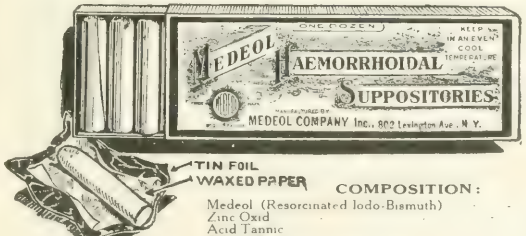

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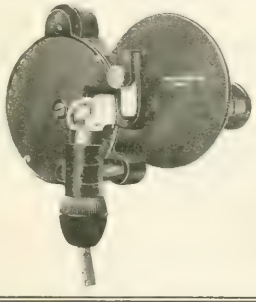

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Hay Fever Spring Pollen Extract is furnished as follows:

No. 0—In packages of four sterile syringes, A, B, C, D strength
No. 4—In 20-mil vials, each mil strength of Syringe D
No. 9—In 5-mil " " " " " " D
No. 11—Single syringe, D strength
No. 12— " " E "
No. 14— " " F "

Syringe	A	contains	0.0025	mg.	pollen protein	nitrogen
"	B	"	0.005	"	"	"
"	C	"	0.01	"	"	"
"	D	"	0.02	"	"	"
"	E	"	0.04	"	"	"
"	F	"	0.08	"	"	"

For Immunization and Treatment of Hay Fever, first dose (Syringe A) should be given at least 30 days before expected attack, followed by B, C and D at five-day intervals. Syringe D strength Hay Fever Pollen Extract should be used at weekly intervals during the entire period of accustomed attack or until immunity is established.

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